THE JOURNAL OF DENTAL EDUCATION

A QUARTERLY FOR THE DENTAL TEACHER

VOLUME 14 MAY, 1950 NUMBER 4

The present is suspended between a great memory and a great hope—memory of what men did in the past, and hope of what they will do in the future.—Author not known.

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Oral Surgery.....Henry B. Clark
Periodontia.....B. O. A. Thomas
Oral Diagnosis.....George L. Powers

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Lucidity

A precocious five-year-old son of a professor asked his father what was the exact meaning of the verse beginning, "Jack Sprat could eat no fat."

"In simple terms," said the professor, "it means that Jack Sprat could assimilate no adipose tissue. His wife, on the contrary, possessed an aversion for the more muscular portions of the epithelium. And so, between them both, you see, they removed or did away with all the foreign substances from the surface of the utilitarian utensil, commonly called a platter. Does that make it clear, my son?"

"Perfectly clear," ejaculated the son. "The lack of lucidity in these alleged Mother Goose rhymes is amazingly apparent to one with an intellect above the moronic grade."

—*Kalends.*

CONFERENCE SESSIONS

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3. ORAL DIAGNOSIS

A. *"The Stepchild of Oral Diagnosis"*

RENE ROCHON, D.D.S.[1]

My assignment for today's discussion was much too inclusive, it read: "give a paper on your chosen subject related to oral diagnosis." The first problem which confronted me was the selection of a topic, and this was not as simple as it first seemed. It was soon realized, however, that a discussion of the problems related to Oral Diagnosis may be approached from one of four ways. Needless to say that from these we had to make a choice, and the fourth way, which we selected is in some respects the most practical. At least it would be the most practical if, at present, the others were not useless.

First, we could deal with this seemingly most confusing problem by making a report of the systems of Oral Diagnosis now in use in different dental schools. But a sufficient number of such studies have already been reported to indicate disagreement as well as a lack of adequate concern among dental educators.[2, 3, 4]

Second, we could go to the opposite extreme and, becoming dogmatically partial, outline a complete system of diagnosis which we could consider our ideal norm. Then, lauding this plan to the skies, and justifying it by factual evidence, we could request its adoption in all

[1]Dean, School of Dentistry, Detroit University.

[2]Ziskin, Daniel E., et al.: Teaching Oral Diagnosis to Dental Students; J. D. *Educ.*, 10, 61-82; 1945 (Dec.).

[3]American Association of Dental Schools, Curriculum Survey Committee: A Course of Study in Dentistry, pages 219-228; Chicago, 1935.

[4]O'Rourke, John T.: General Discussion of the Teaching of Oral Diagnosis; J. D. *Educ.*, 11-16; 1946 (Oct.).

schools. Such an attempt would be doomed to failure from the start, because it is questionable whether the motivating forces of teaching and education should be or could ever be the result of a stereotyped pattern. As a matter of fact, evidence points instead to the necessity of an individual pattern for each physical set up, one for each ideology.[5] The difficulty about doing the thing in this way is that it should not be done. For even if it were possible, it would require both a genius of organization to prepare a plan so ideal that it could fit all circumstances and a genius of argumentation to counter all adverse opinions. Then would our geniuses agree?

Third, dealing in generalities, we could discuss at length the subject matter related to diagnosis which we consider indispensable to a well rounded teaching program. But this would be as futile as unnecessary, because such a study has already been well done by our curriculum survey, and too little attention has been paid to the sound advice which that report gave.[6]

Fourth, we could, as we are going to do, place ourselves on trial and narrowing our discussion to a single problem, report our own failure to reach a satisfactory solution. Hence, our discussion today will be a report of our failure to solve to our own satisfaction the problem of charting and treatment planning in relation to oral diagnosis, and particularly to prognosis, "The Stepchild of Oral Diagnosis."

Perhaps we should fear this discussion because it will be highly controversial. But, after all, isn't everything except the thing itself controversial? The thing, we know, always remains the same, but through our senses we get impressions of it and voice opinions about it. Men's conclusions vary, because they are controlled by their own point of view in observation. For example we know that most often the common sense opinion differs radically from the scientific. Yes, even among scientists, explanations vary fundamentally whether the observer is a physicist, a chemist or a biologist. In finality one's knowledge represents opinions "at different levels of observation"[7] and of understanding.

Yet it is wise to remember that good will always come of a solid discussion, if it be based on good intentions. Far too many of our discussions, however, are inconsequential and this is so because of improper orientation. In our discussions we claim that we are dealing in funda-

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[5]Ziskin, Daniel E., et al.: Teaching Oral Diagnosis to Dental Students; *J. D. Educ.*, *10*, 61-82; 1945 (Dec.).

[6]American Association of Dental Schools Curriculum Survey Committee: A Course of Study in Dentistry, pages 219-228; Chicago, 1935.

[7]du Novy, Lecombe: Human Destiny. Longman, Green & Co., 1947.

mentals, but most frequently we are not. Our point of view is too general, and entertains only qualities based on personal opinions instead of facts. We deal with accidental qualities instead of essential qualities.

As a more concrete example, consider the statement made at one of our meetings some years ago that the head of the diagnosis department would have to be a "super-dentist."[8] This statement was apparently accepted at its face value, for it was frequently repeated in succeeding discussions. Yet nothing could be further from the truth. On the other hand, if we could accept the statement as valid, it would be wrong for us to dismiss it with a shrug of the shoulder, as we have done. For if it were so, and we honestly were desirous of meeting our teaching obligations squarely, we should feel compelled to train everyone of our students as super-diagnosticians. This, of course, is as much an impossibility as it is unnecessary, and we haven't done it.

Returning to our specific problem, charting and treatment planning, a phase of clinical teaching, we should realize at the onset that in the solution of the problem we will have to be most practical. This has to be because, as it has been suggested at earlier discussions,[9, 10] if clinic practice in our schools has to be a dress rehearsal for office practice in later life, then this rehearsal should be patterned after the type of practice that our future family dentist will be expected to follow when attending his patients, and not patterned after a "super-dentist" or even a "super-duper teacher."

Despite the fact that today's discussion be limited to a very minor phase of the entire problem of Oral Diagnosis we should heed our own admonition and return to fundamentals in order not to vitiate our conclusions.

The most fundamental question which begs for clarification is "What is Diagnosis?" Diagnosis has been defined as the art of recognizing and differentiating diseases. This definition was further elaborated upon in our own dental schools literature as:

"The outcome of a careful and exhaustive study of the signs and symptoms associated with the particular condition, or conditions, in question based upon a comprehensive knowledge of the casual factors of the disease, a determination of its type and severity, and an estimate of the amount and kind of damage that has been incurred. Diagnosis

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[8]Walsh, Arthur L.: General Discussion of the Report; J. D. *Educ.*, pages 1-18, 1946.

[9]Ziskin, Daniel E., et al.: Teaching Oral Diagnosis to Dental Students; J. D. *Educ.*, 10, 61-82; 1946 (Dec.).

[10]Rochon, Rene: The Objectives and Basic Problems of Clinic Administration; Proceedings, Dental Schools, pages 203-209, 1948.

is preceded by, and is often possible only after, a thorough examination which should include charting of signs, symptoms, and other factors associated with the condition that is to be diagnosed.[11]

Moreover, since the diagnosis of diseases has been essential to medicine for centuries, it seems that it would be to our interest to become better acquainted with the teaching problems in medical schools. During this study we learned that diagnosis in medicine is linked most intimately with the department of clinical medicine. There they divide diagnosis into Physical Diagnosis and Laboratory Diagnosis. A review of the report by the Council on Medical Education of the A.M.A. on the subject of diagnosis[12] reveals that a student's training in physical diagnosis continues throughout the clinical years, and that the basic course usually was taught in the sophomore year of the medical curriculum.

Early in the course, students are taught the proper methods of examination and gain experience by examining each other. Later they apply these same methods in the examination of patients. It was also learned that in all the higher ranking departments adequate and competent supervision is considered of the utmost importance in connection with the initial contact of the student with patients. Certain department heads believe this introduction to clinical medicine of such importance that they insist on assuming active responsibility for it, rather than delegating the responsibility to a younger and less experienced teacher.

In regard to the inclusion of history taking in the course in physical diagnosis custom varies. However, it did appear that some schools have given insufficient attention and thought to history taking and clinical diagnosis. The number of hours devoted to the course varied from forty to 168. Certain schools provide extensive courses in laboratory diagnosis. Others, it seems, offer inadequate training in the technic of routine laboratory examinations and in the proper interpretation of the results of these examinations. It is reported that in some of these courses only a single laboratory period is devoted to the examination of the blood.

By comparison one soon realizes that medicine and dentistry follow a very similar teaching pattern. It is also apparent that dentistry is not alone in its confusion; similar teaching problems seem to plague Medicine. But under the circumstances this observation on our part is not the most significant. From the definition of Diagnosis which we quoted

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[11]American Association of Dental Schools, Curriculum Survey Committee: A Course of Study in Dentistry, pages 219-228; Chicago, 1935. As quoted by: Daniel E. Ziskin et al., Teaching Oral Diagnosis to Dental Students, J. D. *Educ.*, *10*, 61-82; 1945 (Dec.).

[12]Council on Medical Education and Hospitals of the American Medical Association: Medical Education in the United States; 1934-1939; Chicago.

earlier as well as from the report of the Council of Medical Education, there looms up a lack of emphasis which is fundamental. Both our definition and the outlined procedure followed in medical schools stress the importance of the discovery of the causative factors of diseases. Both, however, make little or no reference to Prognosis. This might be justifiable regarding Medicine but not regarding Dentistry.

We must admit that a determination of the causes of disease is of utmost importance to Medicine and that it is also most important to Dentistry. But except when surgery is involved, to the medical doctor, treatment, in most cases, means the end of his services. The complete care of his patient revolves around an investigation to determine the cause or the type of disease, this is followed by a prescription or a prescribed regimen and after that the patient heals himself. It is not so with Dentistry. The complete dental procedure of patient care is much more involved. As does the physician, a dentist must first treat Pathologic conditions. But for almost every one of his patients this period of treatment has to be followed by one of repair and more important still, the potential effects of such repairs should be visualized even before the repairs are started. This, of course, opens up new avenues, for, if we follow this idea, the needed repairs will have to be planned beyond the purely mechanical and they will always have to be accomplished within the perspective of a second phase of prevention, a stage of prevention beyond the reparative stage. It is this idea which makes Prognosis loom up as most important in the care of our dental patients.

Prevention in Dentistry, therefore, cannot be limited to the reduction of the incidence of dental caries, the prevention of oncoming periodontal diseases, or even of any other oral disease. It always extends into the post repair period. Consequently, the restorative phases of dental practice should be so well planned and so dexterously executed that they will not be a cause of future injury.

With this point of view in mind history taking in Dentistry becomes more involved. Because if Diagnosis in dentistry must always be linked with repair and if repair must always be done in the light of the restoration of function and if function must always be restored in a manner free from encroachment on our so-called second phase of prevention, we have broadened the over-all picture of diagnosis and treatment planning. Inevitably then, such a process of history-taking, charting, and treatment planning, if a dentist be desirous of doing a thorough job of it will have to be most comprehensive.

Have we done this? Unfortunately, either as educators or as prac-

titioners most often we have not. As teachers, as long as we set requirements such as ten gold foils and fifteen inlays as the most important goal for student achievement, we have not; and, as practitioners, as long as orthodontists and exodontists proceed with their treatments or extractions without complete radiographs and without an understanding of the condition of the periodontium; as long as all dental specialists do not administer their care in the light of the requisites of restorative dentistry; as long as the operative man, the crown and bridge man and the partial denture man do not visualize restorations in terms of their own limitations and in the light of the health picture they have not and we have all failed together, teachers and practicing dentists, to recognize the importance of prognosis, the importance of preventive dentistry.

If we accept this idea of the importance of Prognosis as fundamental, as teachers, we must, without hesitancy, attempt to incorporate it in our teaching. As soon as we tried to apply this idea to charting we realized that our charting system was both too limited in scope and too involved. The charts in use at the time did not provide sufficient information regarding the patient's health condition. Moreover, the charting system was further complicated by involving too many charts. First, we had a master chart, a so-called patient chart, then a denture chart, then a crown and bridge chart, a children's clinic chart, a Radiodontic report chart and finally the Periodontia and the Pulp Canal sections each wanted another chart added to the lot.

We, therefore, decided to reorganize our charting system so that our master chart would include the information vital to all the phases of dental practice. Desirous of planning the treatment of the case in the light of patients total health picture and wanting to formulate a complete restorative plan for every patient, we then decided also that our history taking necessarily would have to be extended.

Starting from scratch we designed a brand new charting diagram. Now on our Master Chart we can indicate the presence and extent of caries, the extent and quality of existing dental restorations, periodontal conditions, endodontic conditions, oral manifestation of pathosis, position, and absence of teeth, radiodontic findings, and other anomalies of growth and development. Secondly, we reorganized our history taking so that, in the shortest space possible we could record the manifested signs associated with the systemic health picture. Whenever this examination makes us suspicious of systemic involvement, the family physician's name should be available so that the patient may be referred to him for a report. Finally, in order to simplify the charting of evidence,

instead of using symbols involving a complicated key, we suggested making graphic representations of conditions as they appear in the mouth and on radiographs. (See Figures 1-4.)

Re-registration

UNIVERSITY OF DETROIT SCHOOL OF DENTISTRY A 1716
DEPARTMENT OF ORAL DIAGNOSIS

D.

Date 5-11-49

Patient's Name Mr. John B. Shively Sex M Age 43 Race W
Address 628 W. Canbourne Telephone CA-1750
Referred By R. Pinney (Former Patient) Occupation Electrician
Student Examiner Matt Suba No. 254 Student Assigned Mullin No. 276
Transfer Transfer
Transfer Transfer

EXAMINATION

Present Complaint Toothache 4 General Health (Medical diagnosis and physician's name if under treatment) Good
1. Appetite Excellent
2. Gastro-Intestinal Habits, etc. Good

Oral Condition in General Fair

Malocclusion: Type — Hyperocclusion | 6

Oral Hygiene: Good ☒ Fair ☐ Poor ☐ Oral Odor: Acetonic ☐ Fetid ☐

Caries: Free ☐ Moderate ☒ Rampant ☐ Arrested ☐

Calculus: Supra-gingival: Scanty ☒ Moderate ☐ Abundant ☐
Sub-gingival: Scanty ☐ Moderate ☒ Abundant ☐

Pus: Absent ☐ Present | 4

Saliva: Consistency Limpid ☒ Viscous ☐ Quantity Scanty ☐ Moderate ☐ Abundant ☒

Hemorrhage: Absent ☒ Spontaneous ☐ On Brushing |

Pain: General | Local 4 |

Gingiva: Firm ☒ Spongy ☐ Pink | Red | Purple | Normal ☐ Hypertrophied 4 | 4 Receded |

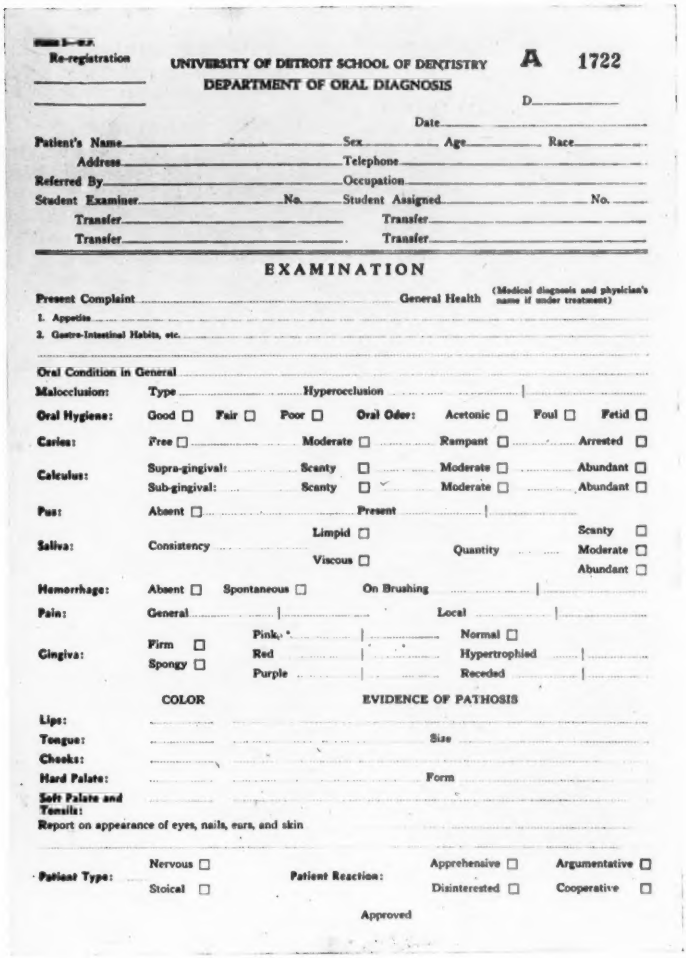
	COLOR	EVIDENCE OF PATHOSIS
Lips:	Normal	
Tongue:	"	Size Average
Cheeks:	"	
Hard Palate:	"	Form High Vault
Soft Palate and Tonsils:	"	

Report on appearance of eyes, nails, ears, and skin — Normal

Patient Type: Nervous ☒ Stoical ☐ Patient Reaction: Apprehensive ☒ Disinterested ☐ Argumentative ☐ Cooperative ☒

Approved (illegible)

FIGURE 1.



Re-registration

UNIVERSITY OF DETROIT SCHOOL OF DENTISTRY
DEPARTMENT OF ORAL DIAGNOSIS

A 1722

D.

Date

Patient's Name ____ Sex ____ Age ____ Race ____
Address ____ Telephone ____
Referred By ____ Occupation ____
Student Examiner ____ No. ____ Student Assigned ____ No. ____
Transfer ____ Transfer ____
Transfer ____ Transfer ____

EXAMINATION

Present Complaint ____ General Health (Medical diagnosis and physician's name if under treatment)
1. Appetite ____
2. Gastro-Intestinal Habits, etc. ____

Oral Condition in General ____
Malocclusion: Type ____ Hyperocclusion ____
Oral Hygiene: Good ☐ Fair ☐ Poor ☐ Oral Odor: Acetonic ☐ Foul ☐ Fetid ☐
Caries: Free ☐ Moderate ☐ Rampant ☐ Arrested ☐
Calculus: Supra-gingival: Scanty ☐ Moderate ☐ Abundant ☐
Sub-gingival: Scanty ☐ Moderate ☐ Abundant ☐
Pus: Absent ☐ Present
Saliva: Consistency Limpid ☐ Viscous ☐ Quantity Scanty ☐ Moderate ☐ Abundant ☐
Hemorrhage: Absent ☐ Spontaneous ☐ On Brushing
Pain: General Local
Gingiva: Firm ☐ Spongy ☐ Pink Red Purple Normal ☐ Hypertrophied Receded

COLOR — EVIDENCE OF PATHOSIS

Lips:
Tongue: Size
Cheeks:
Hard Palate: Form
Soft Palate and Tonsils:
Report on appearance of eyes, nails, ears, and skin

Patient Type: Nervous ☐ Stoical ☐
Patient Reaction: Apprehensive ☐ Disinterested ☐ Argumentative ☐ Cooperative ☐

Approved

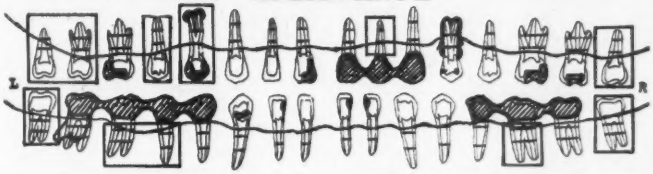
FIGURE 2.

UNIVERSITY OF DETROIT SCHOOL OF DENTISTRY

DIAGNOSIS AND TREATMENT PLAN CHART

Patient John B. Shively Chart 1719 Student Mullin No 266

RADIOGRAPHIC FINDINGS



SURGERY	DENTURE	CROWN AND BRIDGE	PULP CANAL
Remove 14	Upper Partial		

OPERATIVE DENTISTRY

Left 6 D.O. Gold Inlay — 2 / | / — Class V Foils (Labial) — 6 D.O. Gold Inlay Right

Order Of Treatment A) Remove 14

B) Periodontal Treatment for Lower Anterios

C) Restorations - ① Operative ② Partial

Indicate first and second choice of type of material.

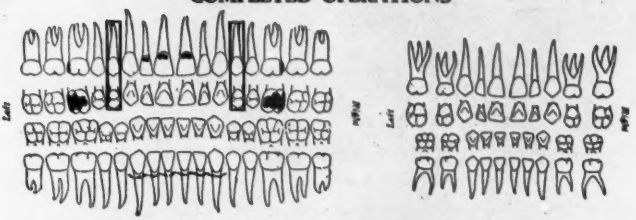
Circle probable abutment teeth. 7 6 5 4 3 2 1 2 3 4 5 6 7

Remarks

Date 5/18/49 Checked And Accepted By W.T.Q.

FIGURE 3.

COMPLETED OPERATIONS



BLOCK IN RESTORATIONS AND MARK WITH SAME SYMBOLS AS KEY.

DATE	TIME CONSUMED: Chair	Lab.	Tooth	OPERATION	STUDENT	INS.	AMOUNT PAID
5-11-49	45 min	—	41	EMERGENCY - RADIOGRAPH & REMOVAL	PAGEL	S	$1.25
5-13-49	1½ hrs	—	—	1X16 RADIOGRAPHIC SURVEY & PROPH.	MULLIN	JE	$4.50
5-18-49	2 hrs	—	—	TENTATIVE TREATMENT PLAN, ALSO TOOTHBRUSH & HOME CARE INSTRUCTIONS	MULLIN	JK	.50
5-23-49	1 hr	1 hr		STUDY MODELS - IMPRESSIONS TAKEN	MULLIN	JK	$4.00
5-26-49	¾ hr	—	14	REMOVED	Johnson	JK	25
6-30-49	1½ hr	—	21 13	GINGIVECTOMY + BOX PACK	MULLIN	WHO	$1.00
5-31-49	2 hrs	—	16	OCCLUSAL ADJUSTMENT	MULLIN	JK	
		—	21 41	MADE CAVITY PREPS FOR FOILS	MULLIN	JK	$9.00
6-3-49	3 hrs	—	21 41	PLUGGED & FINISHED GOLD FOILS	MULLIN	JE	
6-6-49	3 hrs	—	46	CAVITY PREPS & IMPRESSIONS	MULLIN	S	$10.00
6-8-49	2 hrs	—	46	SEATED & FINISHED RESTORATIONS	MULLIN	JK	
6-13-49							

FIGURE 4.

With all the above mentioned information available on a single chart, we feel that we can proceed to the making of a plan of treatment with the patient's entire physical well-being uppermost in mind. In finality

we feel that we can now safely proceed with the treatment of Oral Diseases, the correction of oral defects, the placement of removable or fixed restorations with one thought in mind, efficient functions without injury.

If one adopts this approach case planning must in every instance be more than just an examination. Both scientific and technical advances will have to be met all the way. For example, partial dentures or fixed bridges should never be used indiscriminately as it has been done too frequently in practice. One or the other must be prescribed and only when indicated by the requisites of the case. While making our plans for any restoration we should realize that the best and the most accurate, within the patient's means, can never be too good. All treatments and restorations must be influenced by the thought that efficient mastication influences proper digestion; proper digestion fosters proper metabolism—hence better health.

Yet in practice, for far too many of us, the construction of a partial denture still means an impression plus an occlusal registration, and for a set fee we deliver a laboratory planned potential orthodontic appliance with no forethought as to where or how the teeth will be two years from the date of insertion. Prognosis has been completely disregarded.

It might be enlightening at this time to enumerate the steps of the procedure that our prosthetic department considers essential in the planning of a partial denture.

We assume now that the charting is completed, the radiographs have been taken, our findings reported and finally that we are ready to consider any restorative phase of dentistry in harmony with the patient's total well-being. The review following is made, of course, solely regarding the advisability of the construction of a partial denture.

A. Case History to Determine Advisability.
   1. General Health factors which may affect the wearing of dentures.
      (a) Nervous disorders and their effect on:
         1. Ability of patient to persevere.
         2. Probabilities of patient's cooperation.
      (b) Metabolic disorders, the presence of:
         1. Anemia
         2. Diabetes
         3. Brights disease
      (c) Patient's age and life expectancy
   2. Patient Behavior traits:
      (a) Cooperative (receptive)
      (b) Antagonistic (forewarned)
      (c) Passive (unconcerned)

3. Surgical interventions, Determine:
   (a) Extent of destruction
   (b) Date of Surgery
   (c) Amount of regeneration
   (d) Status of ridge form and its favorability
4. If dentures were worn previously, determine:
   (a) extent of success obtained
   (b) causes of failure if any
   (c) patient's difficulties and grievances—beware of previous failures

B. Reinterpretation of Radiographs to Ascertain

1. Root strength
   (a) Small or large
   (b) Conical or flat
   (c) Single or multiple roots
   (d) Length; short or long; supported or unsupported
2. Quality of bone
3. Root direction and its effect on support—remember that:
   (a) If in line of mastication tooth has ability to stand greater load
   (b) The loss of support is proportional to the deviation
   (c) The extent and type of pocket governs regeneration
4. The presence of foreign bodies may be either dangerous or benign

Note: The above are observable only in high quality radiographs, therefore retakes may be necessary.

C. Digital Examination, to Determine:

1. Depth of tissues
2. The firmness of tissues
3. Ratio of soft tissue area to tooth support
4. Relative size of the restored occlusal surface to support
5. Mobility of teeth
6. Ridge and vault form whether it is:
   (a) Soft
   (b) Bony
7. The presence of unilateral or bilateral exostoses

D. Study Cast Survey and Its Requisites:

1. Cast must be of greatest accuracy
   (a) All undercuts and contours must be included
   (b) Therefore, snap impressions are ruled out
   (c) Impressions must be taken with
      1. Plaster
      2. Hydro-colloid or alginate materials
      3. Not with compound or wax
2. Casts should be examined in articulation if necessary and always on mechanical surveyor to determine:
   (a) Retention of case as a whole and not retention points

(b) The necessity of the elimination of undesirable undercuts of both hard and soft tissues
(c) Location and form of clasps
(d) Position of occlusal rests
(e) Consideration of all operative work to be performed in view of requirements of partial denture restoration.[13]

With all this additional information available we can now plan our restoration. Our data have been evaluated, therefore we are ready to establish a Prognosis, and ready also for the mechanical phases of our problem. A similar review of the evidence should be done, we feel, for every major phase of Dental Practice. (See Figures 5-8.)

Now that we have explained what we have attempted to do it would give us great joy if we could shout, "Success." But, gentlemen, we must admit failure. Why? It seemed that we were doomed to disappointment from the start. First we attempted to remedy a confusing phase of the charting procedure one which was very confusing to students. In order to accomplish this we reversed the right and left on our chart so that they would correspond to the position of our radiographs when mounted. In other words we would examine the teeth and visualize them as if we "were sitting on the patient's tongue," the same as most of us have been doing for our radiographs. But as soon as our chart returned from the printer a report appeared in the A.D.A. Journal labeling this procedure as bad practice.[14] However, even under these circumstances there was nothing else to do but go on. Our chart was ready; we might better test it out, so we did.

Then to complicate matters further, human factors entered into the picture. First, I personally must plead guilty to a lack of foresight, for I put the chart into use without due consideration to the proper distribution of either labor or manpower. In turn the members of our oral Diagnosis staff, with the valid excuse that they were too busy and also following the trend brought about by the accelerated program, skimmed over what the planners of the system considered as essential. They claimed that to fill out the chart completely and accurately would be too taxing, that it would involve too much time and supervision. Under the circumstances they were partly right but to a great degree they favored the line of least resistance. Finally the idea being different, one that they did not use in their own practices, some of our instructors assumed an indifferent attitude, an attitude which was reflected by one

[13]Rochon, Rene: Le Diagnostic Buccal En vue d'une Economie de Temps et d'argent; *J. Canad. D. A.*, 5, 73-76; 1939 (Jan.).
[14]Committee on Nomenclature; *J.A.D.A.*, 34, 647; 1947 (May 1).

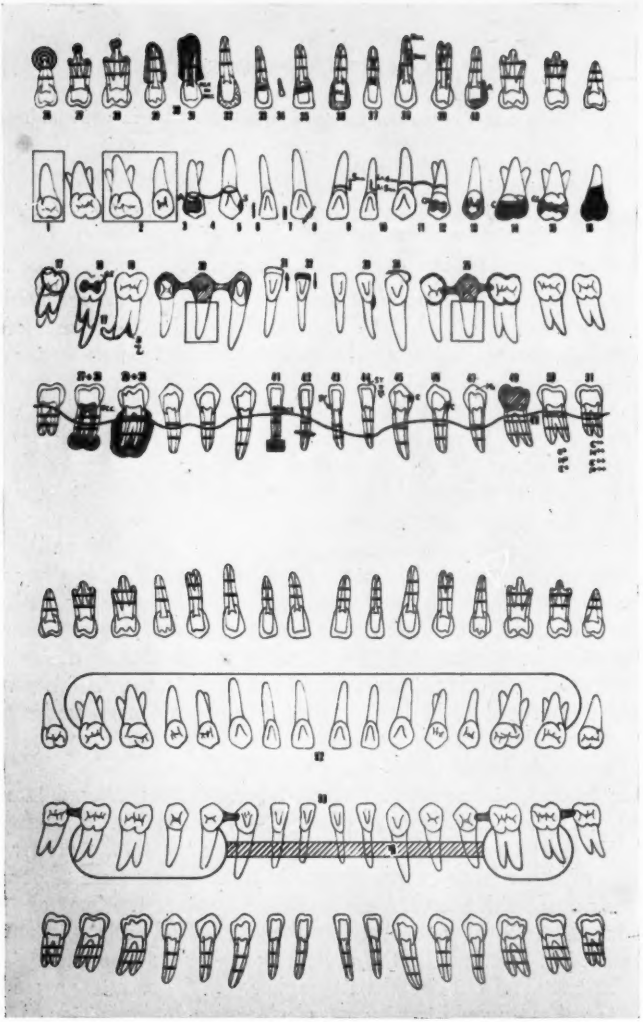


FIGURE 5.

1. Single tooth missing
2. Multiple teeth missing
3. Amalgam (do)
4. Hypertrophied gingiva
5. Silicate
6. Weak contact
7. Broken contact
8. Fractured crown
9. Distal pocket (5mm)
10. LA. or LI. pocket
11. Atrophied gingiva
12. Carious amalgam
13. Three-quarter gold crown
14. Extensive caries
15. Gold inlay (MOD)
16. Root fragment
17. Position or form
19. Bifurcation involvement
20. Fixed bridge
21. Extrusion
22. Incomplete eruption
23. Calculus
24. Rotation
25. Removable bridge
26. Cementum hyperplasia.
27. Radiolucent periap. Manifestation
28. Radiopaque periap. Manifestation
29. Radiopaque period. Manifestation
30. Radiolucent period. Manifestation
31. Pulp canal filling
32. Mottled enamel
33. Erosion
34. Supernumerary tooth
35. Abrasion
37. Calcifications in pulp canal
38. Root resorption or perforation
39. Internal resorption
40. Overhanging amalgam filling
41. Pulp canal with apicoectomy
42. Fractured root
43. Sensitivity localized
44. Sensitivity to heat or cold
45. Prox. caries involving the enamel
46. Prox. caries involving the pulp
47. Mobility (1st, 2nd, or 3rd degrees)
48. Full gold crown
49. Height of alveolar crest
50. Pos. or neg. reaction to cold, etc.
51. Intense reaction to cold, etc.
52. Complete upper denture
53. Lower partial denture

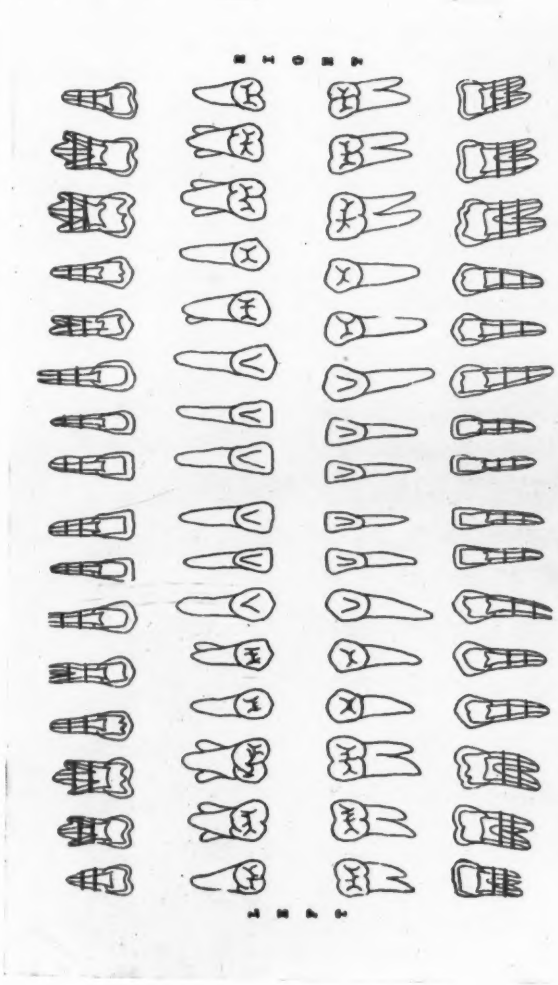

Approved:
Consultation and Recommendation Procedure:
Date
Date

FIGURE 6.

of them saying, "This isn't the way I do it. I've done it the other way for fifteen years, why should I change now?" The students, of course, followed suit.

In the light of this failure what are we going to do now? As educators it seems that too frequently we regard a failure as shameful. It is not so, however, because scientific progress and achievements are based on trial and error and to profit by one's errors is a sign of virility. We are, therefore, not ashamed of our lack of success. Rather as a group we are somewhat poud that we dared to try.

Admittedly we have failed the first time, but we plan to try again with renewed vigor. Next fall we will increase our manpower in the diagnosis department. We will also better allocate the duties of the instructors so that charting and history taking will be under the supervision of a younger graduate while treatment planning will be supervised by a full time instructor of mature experience both in practice and teaching.

Moreover, today, in order to forestall any unforeseen problems, we beg of you, our fellow teachers to be our judges. We desire you to

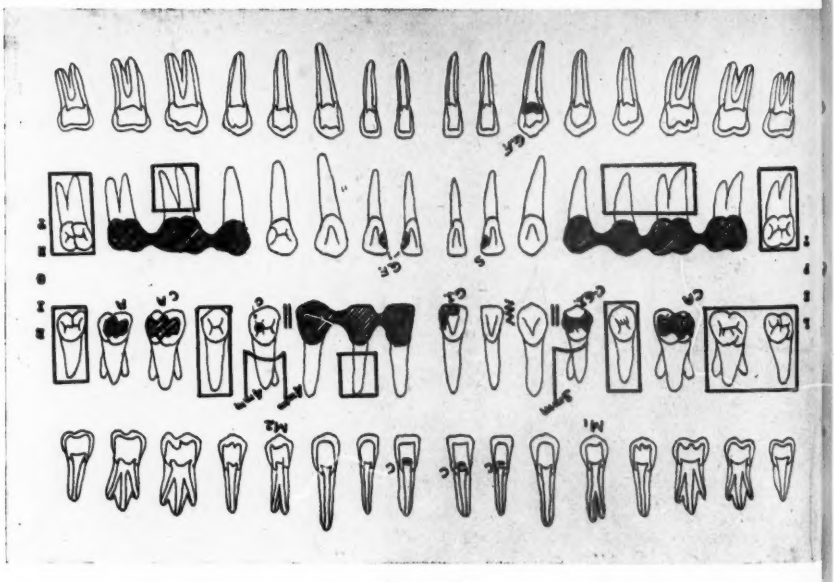
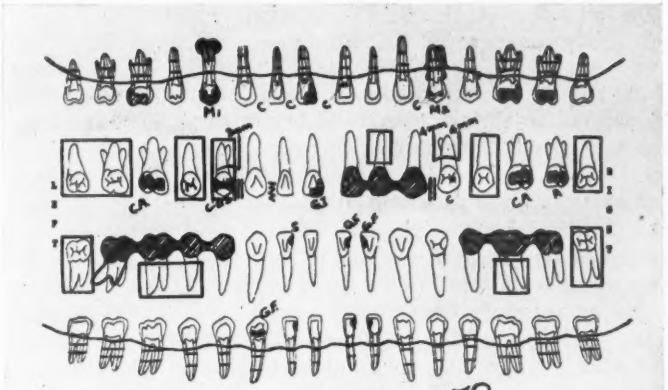


FIGURE 7.



Approved: WJQ

Consultation and Recommendation Procedure:

Date	Date
5-11-49 RADIOGRAPH AREA 41 WJQ	
5-11-49 EMERGENCY REMOVAL 41 WJQ	
FULL MOUTH RAD. SURVEY	
PROPHYLAXIS	
TOOTHBRUSH & HOME CARE INST. WJQ	
5-18-49 MAKE STUDY MODELS JH	
5-26-49 REMOVE 16	
PERIODONTAL TREAT. SEE TREAT.	
OCCLUSAL ADJUSTMENT 16	
GOLD FOILS 21	
GOLD INLAYS 46 WJQ	

PATIENT'S RESPONSE

FIGURE 8.

prove us wrong in certain other instances where we have been blinded by our limited vision. We are positive that we are right in our approach regarding prognosis, but if you can point out a more expedient way to reach our goal of restoring efficient oral function without potential injury then we will be most grateful to you.

B. *Discussion*

MILTON HYMAN, D.D.S.,[1] *New York*

I must say that I admire Dean Rochon's style of writing, choice of language and logic in the preparation of this paper. Unfortunately, the exceptionally well written paper does not always come off with flying colors when read. Summer heat may dull our senses. The speaker can't pause long enough to let an important point sink in. He cannot repeat a thought he wishes to emphasize. What I am trying to say is this: regardless of how much you got out of Dean Rochon's fine presentation, he makes so many good points, that I strongly suggest that the paper be read very carefully when published.

I wish he had found the time to elaborate more fully on his statement that "evidence points . . . to the necessity of an individual pattern for each physical set up." We all strive for the ideal in our Oral Diagnosis Departments, yet these ideals are modified unconsciously by other factors, such as: the number of students, the number of new patients, student faculty ratio, physical limitations of clinic space, economic condition of our patients, intelligence of our patients, cooperation between Oral Diagnosis and other dental departments, cooperation, or lack of it, between the dental and medical schools of a university, and last, but not least, the financial condition of the university.

One wonders whether it will ever be possible to have a single similar pattern for all the dental schools without extensive modification. Furthermore, another important factor enters into the picture, which Dean Rochon has phrased so well, that I should like to repeat it: "Men's conclusions vary, because they are controlled by their own point of view in observation."

Why should clinic practice in our schools be a dress rehearsal for office practice, in so far as our history taking, charting and treatment planning forms are concerned? Do we expect our students to go out into general practice and utilize the rather voluminous patient records now in use by some schools? I doubt it. I can go one step further and question whether there is any among you, engaged in general practice, who uses in his own practice the forms he has his students fill out.

But come to think of it, why should the student use the same forms as the general practitioner? Our school records have to aid in teaching. On them are listed all the things the student should observe and all the information he should get from the patient. These are the items which

[1]Department of Oral Diagnosis, College of Dentistry, New York University.

will aid him in his diagnosis, and, as Dean Rochon has pointed out, his prognosis. These are the items which the general practitioner should note automatically without checking off item by item on a sheaf of papers.

I must confess that we too have been having chart troubles at N.Y.U. A committee has been laboring on the problem for the past year without even giving birth to the proverbial mouse so far. We have all agreed that something should be done, but have disagreed as to the method. Our master chart is an excellent clinic record but a poor diagnostic record. The several departments have their own specialized diagnostic records covering the same ground as those mentioned by the essayist.

Somewhere between the two extremes of the voluminous record and the abbreviated inadequate form, there must me a happy medium. If time proves that the chart shown here is the answer, then we will owe Dean Rochon and his associates a vote of thanks.

The comment about the distribution of duties of the instructors in Diagnosis is rather interesting, in that we too had come to that conclusion. Our distribution is as follows: the youngest instructor helps the student with his examination, study models, etc.; two other instructors supervise the diagnostic clinic; and the most seasoned instructor checks the student's plan of treatment in conference groups. The conference method enables the student to get the benefit of the other diagnoses covered, without having to work them up himself.

Tying up prognosis with diagnosis is a rather novel approach. Yet when we stop to think about it, it does seem the proper one. Carried to its logical conclusion, it would teach the student to visualize the possible result of his treatment, while he is still in the examination and treatment planning stages. It would teach him to think ahead, to plan for his patient's future.

I am afraid that I must disagree with Dean Rochon when he says that "our discussion today will be a report of our failure to solve the problem of charting and treatment planning in relation to oral diagnosis." He has given us several important points to think about, and the man who can make us think has been eminently successful.

4. PERIODONTIA

A. *Methods of Teaching History Examination and Treatment Plan in the Periodontia Clinic Without Undue Loss of Time*

IRVIN T. HARRIS, D.D.S., M.S.D.,[1] *Chicago*

One of the major criticisms of practicing dentists is that many are inclined to regard history taking and examination as time wasted or lost. Repeatedly, those of us who are emphasizing the care and treatment of diseases of the investing tissues in daily practice, have patients referred who have been informed for the first time in their lives that they have "so-called pyorrhea" in a somewhat advanced stage. These patients will usually say that they have reported for dental care at regular intervals and they now feel quite perturbed that they had not been informed at any previous time about their condition. At times they severely criticize their dentist either for not recognizing the condition or being too busy to investigate their mouths thoroughly. Many will not wish to return to their dentist for further care when their periodontal problem is under control.

As a teacher it appears difficult for me to understand how the phrase "Undue loss of time" fits into the picture. If a student spends a whole afternoon learning to appreciate the value of one or two steps in the procedure it would seem to be worth while. Almost every examination and history chart being used today is arranged in great detail. At first these charts may seem to be unwieldy and burdensome but as one delves deeper into the problem it becomes evident that much is yet to be accomplished in this particular branch of oral pathology. If this be true, then we should take advantage of the vast amount of clinical material examined by keeping detailed and accurate records. In no other way will we be able to evaluate intelligently as regards etiology, diagnosis and treatment.

The heading of this paper implies that short cuts may be taken to conserve time or perhaps we should say that certain steps may be eliminated to attempt some type of control on the amount of time involved. There is only one way to conserve time and that is to adopt a thorough and systematic method then see to it that the student learns it well. If such a method is adopted it necessarily follows that time will be cut to a minimum.

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[1]Department of Periodontia, Northwestern University Dental School.

The following statements were taken from the report of the Curriculum Survey Committee, American Association of Dental Schools:[2] "It is generally recognized that the weakest link in dental education today is the instruction in diagnosis and treatment planning." This was written in 1935 and still holds true.

Very few dental schools offer special courses in this subject. The teaching of the subject is usually divided among the several clinical departments, each giving attention to those phases of diagnosis and treatment planning that appear closely related to its particular service. Insufficient attention is generally given to adequate diagnosis and prognosis as the basis of rational treatment, with the result that the student is apt to acquire a superficial idea of correct diagnostic methods and the part they play in dental service. Undoubtedly, the all too frequent emphasis on the mechanics of restorative service is responsible for this lack of concern with instruction in diagnosis.

Much effort is expended in teaching fundamental sciences to dental students, but the full benefit is not derived from these sciences because they are not sufficiently applied in the study and treatment of cases. This particular weakness can be corrected through instruction and clinical practice that constantly forces the student to use the principles and procedures acquired in his earlier study. A comprehensive course of instruction in diagnosis and treatment planning should help to accomplish this object.

Frequently sufficient attention is not given to the fact that diagnosis involves an orderly procedure which is the reverse of that to which the preclinical teaching accustoms the student. In courses in pathology he studies diseases by beginning with the etiology and proceeding through various steps to the symptomatology, which is usually the last step. In making a diagnosis this order is reversed, the diagnostician beginning with the signs and symptoms and finally arriving at the etiology and diagnosis. Students who have presumably learned the principles of pathology have been known to fail completely in diagnosis because they were unable to reverse the order of study."

The following definitions are given in order that confusion may be avoided in the study of this chapter:

Examination is the careful scrutiny of or inquiry into certain circumstances, facts, and conditions. In dentistry it relates to the collection of data for the purpose of making a diagnosis. It implies ability to recognize the various manifestations of oral and related diseases and disorders,

[2]Report of Curriculum Survey Committee, American Association of Dental Schools, 1935, p. 219.

as well as ability in the use of the usual methods and procedures employed in the investigation of the various signs and symptoms.

Signs of disease are objective phenomena which can be detected by someone other than the patient, as fever, swelling, and inflammation.

Symptoms of disease are subjective phenomena, such as pain, dizziness and nausea, the manifestations of which can only be comprehended by the patient.

Diagnosis is the act or art of identifying a condition or conditions, which in a broad sense may be any departure from normal. It is the outcome of a careful and exhaustive study of the signs and symptoms associated with the particular condition, or conditions in question, based upon a comprehensive knowledge of the causal factors of disease, a determination of its type and severity, and an estimate of the amount and kind of damage that has been incurred. Diagnosis is preceded by, and is possible only after, a thorough examination, which should include charting of signs, symptoms, and all other factors associated with the condition that is to be diagnosed.

Prognosis is a forecast of the probable course, duration, and outcome of disease, and the probable result of treatment. Diagnosis and prognosis are necessary for determining and administering rational treatment. Every student preparing to render dental health service should learn to carry out these steps intelligently, and this part of his education should have a prominent place in the dental curriculum.

In the introduction of students into the clinical departments of the dental school, the transition from preclinical study to practice on patients is not gradual and easy. Most students find the change so abrupt and revolutionary in character that their progress is seriously retarded by a bewildering maze during their first few weeks in the clinic. At the beginning of his clinical work the student is confronted with certain problems about which he has studied, but, because of his unfamiliarity with the routine diagnostic procedures and his inability to make careful observations and systematic notations of his findings, he is unable to arrive at a comprehensive diagnosis or pursue an orderly sequence of treatment.

It is partly for the purpose of supplying a bridge by which the gap between class instruction, laboratory procedures, and clinical practice may be more easily surmounted that this course is planned, as well as to give the student a preview of many conditions about which he is to receive more detailed information later in his dental course. If the course is properly presented, it should aid the student in orienting himself and

establishing orderly methods of procedure, whereby thoroughness of detail in every operation will become a fixed attribute. There is *no presumption* that at the beginning of his clinical work the student will be able to diagnose every condition which he meets, but it is expected that through the routine examination of patients' mouths he will soon become familiar with the appearance of the normal structures of the oral cavity, after which he should be able to recognize evidence of disease.

The training of students in history taking, examination and treatment planning at Northwestern University Dental School begins in the department of Oral Diagnosis. Here the student is taught how to fill out the "Black Chart" which is used on every patient that is admitted to the dental clinic for anything other than emergency treatment. To fill out this chart completely the student must follow a definite procedure: (See Figures 1 and 2.)

When the student first enters the clinic he is given practice exercises in groups and as an individual to familiarize him with the procedure of taking an accurate history and making a satisfactory examination and treatment plan. He is then required to make a complete diagnosis and treatment plan on every patient he accepts for routine dental work.

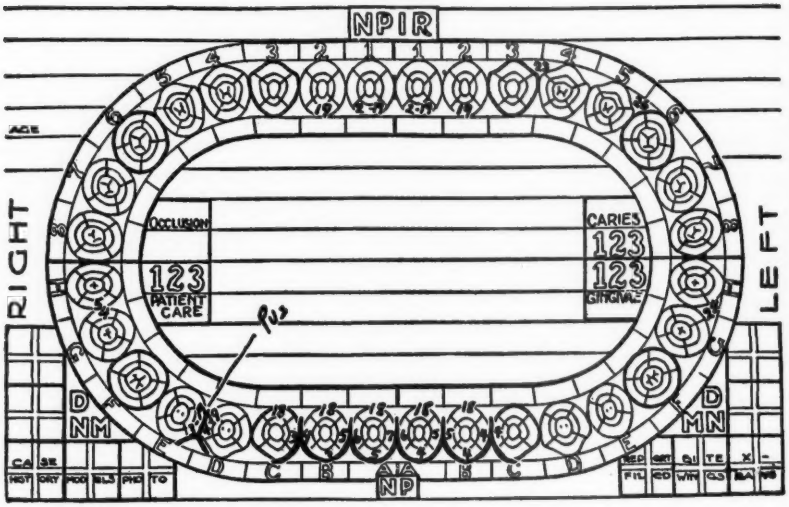
During the student's clinical experience he is required to do a specified number of "Diagnosis Specials." By this we mean that he must accept several cases which present a variety of problems in diagnosis and treatment planning. These special cases must be first examined by a teaching member of the diagnosis department under Dr. James Burrill, who gives the approval for the student to go ahead and who also designates that the case at hand requires special consultation and advises the student to consult with a teaching member of the department or departments where the specific problem should be studied. (See Figures 3, 3A, 3B, 3C, 3D.)

Diagnosis Special

The Diagnosis Special is intended as an educational exercise which gives emphasis to thorough diagnosis and careful treatment planning. Diagnosis is one of the most difficult phases of dental practice. We cannot treat a case efficiently unless we have the ability to make an accurate diagnosis.

Each senior is expected to select two cases which present a variety of complicating factors. One case should be basically prosthetic and one case basically operative and periodontal. Both cases selected should be carried to completion, if practical, but one case must be finished according to plan. Extra credit will be given on the completion of both cases when they are presented for review.

The Oral Diagnosis Department will approve the selection of the cases to be used



History:

No.	DETAILED PLAN OF TREATMENT	R.	L.	Inst.	No.	DETAILED PLAN OF TREATMENT	R.	L.	Inst.
1					15				
2					16				
3					17				
4					18				
5					19				
6					20				
7					21				
8					22				
9					23				
10					24				
11					25				
12					26				
13					27				
14					28				

FIGURE 1.

CHART TO BE USED AS A GUIDE IN RECORDING ROUTINE EXAMINATIONS

CHART TO BE USED AS A GUIDE IN RECORDING ROUTINE EXAMINATIONS

GENERAL SURVEY. Record Occlusion, Patient Care, Estimate of Susceptibility to Caries, Condition of Gingivae.

THE OCCLUSION.

First letter for molar relation right side.
Second letter for molar relation left side.
Third letter for incisors, upper or lower.
Use dash if for lower incisors.

N N N Normal.
N N I Molars normal, incisors irregular.
D D P Bilateral distoclusion, up. inc. protruding.
D N P Unilateral distoclusion, up. inc. protruding.
D D R Bilateral distoclusion, up. inc. retruding.
N D R Unilateral distoclusion, up. inc. retruding.
M M - P Bilateral mesioclusion, low. inc. protruding.
M N - P Unilateral mesioclusion, low. inc. protruding.

THE DENTITION.

/ Congenitally absent.
— Missing (not erupted; extracted).
= Unerupted and overdue.
≡ Impacted.

Delayed eruption, enter age in lingual rectangle.

Temporary teeth retained. Circle with arrow indicating position in arch.

SUPERNUMERARY TEETH.

○ Cone.
◉ Truncated cone.
Y Dichotome.
⊔ Fused teeth.
⊂ Gemma.

Extra teeth of normal form. Locate on chart, name in center oval.

DENTAL CARIES.

o Pit decay.
( ) Proximal decay, mesial and distal.
◠ Gingival third decay, upper and lower.

DYSTROPHIES and other conditions of Hard Tissues.

Enter numbers in labial-buccal rectangle.

91 Hypoplasia. Atrophy.
92 Enamel whorl.
93 Corrugated teeth.
94 White spot in enamel.
95 White enamel.
96 Mottled enamel.
97 Erosion. Locate areas in Blue.
98 Abrasion. Locate areas in Blue.

GINGIVAE; PERIDENTAL TISSUES.

Enter numbers as illustrated in Fig. 6c.

16 Diastema, no inflammation.
17 Recession, no inflammation.
18 Salivary calculus.
19 Serumal calculus.

GINGIVITIS DUE TO

Lack of Contact of Teeth:

21 Separations following extractions.
22 Abnormal positions of teeth.
23 Movements caused by excessive stress.
24 Weak contact, no decay.
25 Proximal decay.
26 Proximal restoration
27 Loss in width of neighboring space.
28 Detachment peridental membrane.

Improper Contact of Teeth:

31 Abnormal forms of teeth.
32 Malpositions.
33 Embrasures abnormally narrow.
34 Excessive proximal wear.
35 Restorations and Crowns.

Deviations From Normal Contour:

36 Sharp edges of cavities.
37 Imperfect margins of restorations.

EXCESSIVE OCCLUSAL STRESS:

41 Migration of tooth, no pericementitis.
42 Apical pericementitis, no bone absorption.
43 Apical pericementitis, bone absorption.
44 Lateral pericementitis, bone absorption, no detachment.
45 Lateral abscess.
46 Tooth loose; 45— slightly loose; 45+ very loose.

CHRONIC PERICEMENTITIS. PYORRHEA.

Enter depth of pockets in mm. on sides of root where detachment has occurred.

CEMENTUM.

51 Hypercementosis.
52 Apical resorption of root.
53 Lateral resorption of root.

PATIENT CARE.

61 Lack of cleaning by mastication.
62 Lack of artificial cleaning.
63 Injury in cleaning.

PULPS; PERIAPICAL TISSUES.

Enter letters as illustrated in Fig. 6c.

H Hyperemia.
N E Normal pulp, accidental exposure.
E Exposed by caries, vital.
A I Acute inflammation of pulp.
C I Chronic inflammation of pulp.
H P Hyperplastic pulpitis.
P D Partially dead.
D Dead.
N C Nodular calcification.
F C Fusiform calcification.
S D Secondary dentin excessive.
R Root filling.
P R Partial root filling.
T Traumatic apical pericementitis.
A F Acute apical pericementitis.
C Chronic apical abscess, granuloma.
S Sinus from apical abscess.
P C Periapical cyst.
A Acute periapical abscess.

X RADIOGRAPHS, single teeth, enter in Red.

TREATMENT.

Preventive, for caries, enter same as caries, in Blue.

Restorations:

● Pits.
( ) Mesial and distal.
(-) Mesio- and disto-occlusal, mesio- and disto-incisal.
◠ Gingival third, upper and lower.
○ Crown.
Bridge, fixed, to crown and inlay.
Bridge, attached to crown, rest on inlay.
Bridge, removable, pin and sleve.
Bridge, removable, clasps.
Partial; pin and sleve, clasp and rest.
Full dentures, enter in center oval.

Gum Resections:

Labial or lingual.
Interproximal.
Labial or lingual and interproximal.
Labial, lingual and interproximal.

X Teeth to be Extracted.

PREVIOUS OPERATIONS.

Same symbols as above, in Red.

Figure 2.

Place Assignment Slip Here:

Chart mouth carefully after prophylaxis.

DIAGNOSIS SPECIAL

Patient's Name_____

No._____

Address_____

Student's Name_____

No._____

Remarks:_____

Case Requirements to be Initialed by Oral Diagnosis Department	Full Mouth Radiographs	Bite Wing Radiographs	Prophylaxis and Mouth Chart	Study Models	O.K. to start consultations
Departmental Consultations	Periodontia	Operative	Surgery	Full Denture	Crown, Bridge Partial
Laboratory Tests					

FIGURE 3.

	DEPARTMENT OF ORAL PATHOLOGY AND PERIODONTIA Final diagnosis consultation sheet	Grade

FIGURE 3A.

ORAL PATHOLOGY WORK SHEET

For student's preliminary diagnosis. To be removed after approval and transferral to final sheet.

FIGURE 3B.

DEPARTMENT OF CROWN, BRIDGE AND PARTIAL DENTURES

Final diagnosis consultation sheet

Grade

This department should not be consulted until after the Oral Pathology diagnosis consultation. The condition of the teeth to be used as abutments should be carefully considered.

FIGURE 3C.

CROWN, BRIDGE AND PARTIAL DENTURE WORK SHEET

For student's preliminary diagnosis. To be removed after approval and transferral to final sheet.

ORAL DIAGNOSIS

Special Diagnosis Treatment Planning

Final Grade

Student's plan of treatment should be recorded after careful consideration of the results of his departmental consultations. Transfer to assignment slip after approval.

Treatment Plan Procedure		R	L	Treatment Plan Procedure		R	L
1				22			
2				23			
3				24			
4				25			
5				26			
19				40			
20				41			
12				42			

FIGURE 3D.

and give advice on the preliminary planning and procedure. All consultations and reviews will be done by appointment only. Each consultation will be indicated by the Oral Diagnosis Department or as deemed necessary by the instructors consulted. All items designated by the Oral Diagnosis Department must be carried out as directed.

Be sure that you are familiar with the instructions and procedures set forth before going ahead. Take sufficient time to make a careful clinical and radiographic examination. Think through each phase of the diagnosis. Approach the case as an exercise intended to sharpen your powers of observation and reasoning. Consider the cause behind the development of each of the various manifestations that are present and how its treatment will affect the overall treatment of the mouth. Be prepared to explain why you advocate a particular type of treatment.

Make the clinical examination in an orderly sequence. A hurried survey of the mouth does not constitute an examination and a cursory consideration of the findings does not constitute a diagnosis. After the completion of the diagnosis and consultations, plan each step of the treatment in a logical order of sequence.

Order of Procedure for Diagnosis Special

Follow this order of procedure:

1. Select case with the approval of the Oral Diagnosis Department (two cases to be done).
2. Have Full-Mouth Radiographs (and bite-wing when indicated).
3. Complete prophylaxis.
4. Study models of the case (when indicated).
5. A careful and complete clinical and radiographic examination and charting using Black's symbols and codes.
6. The preliminary diagnosis and treatment plan done on the second sheet in each department division.
7. Consultations in order recommended by the Oral Diagnosis Department.
8. The completion of the treatment plan in the Oral Diagnosis Department.
9. The review of the case in the Oral Diagnosis Department following the completion of all the work outlined in the treatment plan.

The Department of Oral Pathology and Periodontia

The Department of Oral Pathology is primarily concerned with the detection and treatment of diseases of the teeth and investing tissues. Follow a systematic procedure in preparing for consultations. A thorough clinical examination of the investing tissues is necessary and of prime importance. Examine the mucosa of the mouth for ulcerations, neoplasms, burns, and other types of pathology that might be present. Chart all abnormal and pathological conditions. Examine the hard tissues and record the conditions carefully.

If your radiographs are deficient, have retakes made before trying to accurately diagnose a case. Examine the radiographs carefully, using them as a check on your clinical examination. Examine them, also, for any evidences of pathology of the tissues shown in radiographs. Consider the lamina durae, the periodontal membrane space, the condition of the bone at the alveolar crest, and at the periapical area. Look for evidence of retained root fragments, fractured roots, internal resorption, impactions, odontomas, cysts, and the many other conditions which may be revealed by radiographs. All abnormal and pathological conditions found should be recorded on the chart.

Plan the steps of treatment in logical sequence. If a patient is in pain, the relief of pain is of paramount importance. If oral hygiene is faulty, instruction as to the proper brushing and interdental stimulation is necessary. These measures should generally be done early in the course of treatment.

Extractions should generally be done early so that the ridges will have time to assume a proper condition while other work is being done. Occlusal adjustments, when indicated, should be completed before operative or prosthetic restorations are begun. Root canal therapy should not be advised if an aseptic technique cannot be maintained throughout and if there are any conditions which preclude the possibility of a satisfactory root filling.

Diagnosis Sheets

Before the student consults any department he has acquired a full set of radiographs, a set of models, a brief but complete medical and dental history and has filled out the Black Chart. He has also been advised to formulate his own treatment plan on a sheet of scratch paper to use as a comparison with the final approved treatment plan. In this way his errors can be emphasized and the teaching effort should be more effective.

In order that the consultation may not be a hit and miss affair a definite appointment is made with an instructor who reserves a specified amount of time for the student. He then can sit down with the student and discuss the problem after the patient has been seen. This is a very practical and satisfying experience for both the teacher and the student.

After the consultations have been completed the student reports back to the instructor in the "Oral Diagnosis Department" where all of the material is correlated and a plan of treatment is written out in its final form. The student is then ready to begin treatment. When the program has progressed to this stage both the patient and the student thoroughly understand the patient's problem and are ready to begin treatment. At least one of these complicated cases must be carried through to completion by each student to meet the requirements for graduation.

Up to this point the history taking, examination and treatment planning in the department of periodontia have been treated as a part of the general plan for the patient. This we believe is as it should be; however there are many patients whose problems are mainly or entirely periodontal in character. In these particular patients our approach is more direct and follows a little different procedure. In addition to the Black Chart a special form is used which was made up by the Periodontia Department under the supervision of Dr. G. R. Lundquist and Dr. D. W. Brown. (See Figures 4, 4A, 4B.)

PERIODONTAL CASE HISTORY

Case No._____

Date_____

Patient's Name_____ Student_____

Address_____ Class_____

_____ Number_____

Telephone: Business_____ Residence_____

Sex_____ Age_____ Weight_____ Height_____ Birthplace_____

Nationality_____ Vocation_____ Rt. or Left Handed_____

Pertinent family history:

_____

_____

Previous Medical History:

Childhood Diseases_____

Serious Illnesses_____

Major Operations_____

Most Recent Physical Examination_____

Present State of Health_____

Dietary Habits_____

Tooth Brushing Technique:

Bruxism_____

Bruxomania_____

Habits:

Occupational_____

Other_____

Laboratory Tests Indicated:

Bacteriology_____

Blood_____

Metabolism_____

Salivary_____

Biopsy Specimen_____

Other_____

Report on Laboratory Tests_____

_____

Refer to mouth chart for detailed scale of occlusal surfaces, incisal edges, axial surfaces and roots of teeth.

FIGURE 4.

Photographs:
- Pre-Operative_____
- Completion_____
- Post-completion_____

Extractions Indicated: Indicate teeth and give reason for_____

Zinc Chloride Packs:
- How Many Sittings_____
- Intervals Between Appointments_____
- Subsequent Packs Advised at_____Intervals_____

Restore Contacts_____

Widen Embrasures_____

Probable Areas for Pocket Elimination_____Gingivectomy or Other Methods

Recondition Old Restorations_____

Interdental Stimulation Advised_____

Brushing Instructions Given_____

Diet Instructions Given_____

Casts Mounted on an Anatomical Articulators_____

FIGURE 4A.

DIAGNOSIS

General Condition as to Caries_____

General Condition as to Investing Tissues_____

Mucous Membranes_____

Calculus:
- Supra-gingival: None or Little_____ Medium_____ Heavy_____
- Sub-gingival: None or Little_____ Medium_____ Heavy_____

Etiological Factors: Local_____ Systemic_____

Clinical Depth of Pockets in MM. (record on special chart)_____

Occlusal Adjustment:
- Grinding_____
- Increase Vertical Dimension_____
- Diagnostic Bite Plate_____

Grinding Chart (record on this special chart):
- Tooth_____
- Surface_____
- Amount in MM._____

Condylar Inclination:
- Right_____
- Left_____

Freeway Space in MM._____

Architectural Type of Bone:
- Normal_____
- Hypocalcemic_____
- Hypercalcemic_____

Anomalies of Dentition:
Supernumerary Teeth_____
Congenitally Missing Teeth, Etc._____

TREATMENT PLAN

Models:
Diagnostic (original and duplicate)_____
When Treatment Is Completed_____
Five Years Post-Completion_____

Radiographs:
Condyle_____
Cephalometric_____
Peridental_____
Bite-wing_____

Post-treatment:
Peridental_____
Bite-wing at yearly intervals_____
Other at yearly intervals_____

FIGURE 4B.

The use of this chart is confined to those students who have had enough clinical experience to be thoroughly familiar with the previously mentioned routine methods of examination and charting. It is intended to further the students' interest in and appreciation of this particular division of Oral Pathology as well as to furnish the department with complete records which are available for research purposes.

It is the opinion of some of the more active workers in the field of periodontology today that a complete functional analysis should be done on all cases where the investing tissues show evidence of deterioration.

A functional analysis suggests—

1—A detailed clinical study of occlusion during the functional excursions of the mandible carefully noting:
A—premature contacts upon closure
B—mandibular displacement
C—overclosure
D—other occlusal disharmonies which may produce break down of investing tissues or T.M. disturbances.

This study is supplemented by accurate casts mounted on an anatomical articulator.

2—A radiographic study of the condyle heads in the glenoid fossae.
A—when the mandible is in rest position
B—when contact of the teeth first occurs
C—when teeth are in occlusion.

This study makes the student very much aware of the fact that the mouth should be considered as a functioning unit and that individual operations which have engrossed the greatest portion of his time up to this point play only a minor part in the large picture. It eventually dawns upon him that a very simple thing such as an improperly contoured filling may result in pathology not only in the immediate area of the filling but may disturb the occlusion to the extent that in time serious pathology of the investing tissues may result in various regions of the mouth.

In conclusion let us review the methods used to familiarize the student in methods of history taking, examination and treatment planning in the department of periodontia.

1. Teaching the student the use of the "Black Chart" which he uses on every patient he accepts while gaining his clinical experience. The periodontal examination plays an important part in this procedure.

2. Requiring each student to do several so called "Diagnosis Specials" which broadens considerably his experience in diagnosis and treatment planning. Again the periodontal problem plays a very important role.

3. Requiring the student to make a special type of examination on patients whose major problem is periodontal pathology.

The educators tell us that repetition is very effective in the teaching process. They also state that the time element for the most part is not too important in effective teaching. However, if the student is required to use a thorough systematic method of history taking, examination and treatment planning he will eventually become proficient and thus a minimum amount of time will be consumed in this procedure.

B. *Periodontology as a Basis for Improved General Dental Practice*

B. O. A. THOMAS, D.D.S., Ph.D.,[1] *Seattle, Washington*

Introduction

Dental education has made real strides during the past quarter-century. The fact that this meeting is in session proves that we are interested in continuing to improve the quality of dental instruction in the schools of today. Our obligation to the public and to our profession is to produce dentists eminently qualified to practice dentistry in its most modern aspects. The function of the dentist in general practice is

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to maintain the health, function and beauty of the oral cavity as a part of the entire biological unit, the human body. This function cannot be met by concentrating all of one's efforts on amalgams, foils, inlays, bridges or dentures. Neither can it be met by restricting the majority of one's chair time to subgingival curettage, gingivectomy, selective grinding or dietary recommendations. We must strike a reasonable and sensible balance between these various phases of dental practice if we are to discharge our obligation satisfactorily. The proper place to begin emphasizing such a balanced program of dental practice is in the undergraduate curriculum of the dental schools.

As the title of this discussion indicates, we are interested in how to best emphasize the basic importance of periodontal procedures in the practice of general dentistry. Before we become too concerned about emphasizing periodontology as a basis for anything, let us see whether we are justified in assuming that this field is the basis for the successful maintenance of oral health. It is common knowledge that more teeth are lost as a result of periodontal disease than for any other reason. Does the treatment of such disease by the well-qualified periodontist yield successful results in a high percentage of cases? We know that the answer to this question is yes. We also know that in the majority of cases of gingivitis and periodontitis, successful treatment can be administered by any conscientious dentist possessing average skill.

Periodontal Tissues Neglected

What are some of the reasons given by dentists for not caring more adequately for the periodontal needs of their patients? These include the following: (1) Lack of specialized training or knowledge; (2) difficulty of obtaining adequate fee for periodontal treatment; (3) patients will not cooperate in the home care phases of periodontal treatment; (4) the dentist is too busy with reparative and restorative treatments to find time for periodontal treatments and oral hygiene instruction.

It is evident that these statements can be answered by very convincing arguments to the contrary. Time, however, does not permit us to do this. Suffice it to say that the dentist who neglects the periodontal needs of his patients is not satisfactorily discharging his duties as a member of the health professions. The number of dentists guilty of such neglect of duty is not small!

Departmental Cooperation Essential

In many schools, through the years, periodontology has been a sorry stepchild of various so-called "major" departments. Remarks to students

by faculty members of prosthetic, operative or bridge departments have too often indicated that these men did not feel periodontal treatment was of much importance. Such opinions, falling on the impressionable dental student often conditions the student to resist the teachings of the faculty in periodontology.

Cooperation between all departments in every phase of diagnosis, treatment and periodic recalls is essential if we are to produce a dentist equipped to properly care for his patients' dental needs. Periodontal problems often overlap every other phase of dentistry. I have previously discussed the relationships of periodontology to the field of pedodontics and operative dentistry. Time does not permit a review of these relationships or an extension of remarks concerning the interrelationships of periodontology, prosthetics or oral surgery.

Emphasis by Didactic Material

Assuming that the entire faculty is agreed concerning the basic importance of periodontal therapy in diseases of the supporting oral tissues, how can we best imbue the undergraduate student with enthusiasm for this point of view?

First: In all periodontology lectures emphasize the thought that proper attention to diagnosis and early periodontal treatment will insure the most satisfactory results from subsequent reparative and restorative procedures.

Second: Cite actual case histories and use colored lantern slides to illustrate pathological conditions and the results of treatment.

Third: Present lecture material in a progressive fashion, so as to gradually approach the more detailed and difficult phases of the subject in a manner which stimulates the student's interest. As an example, present the more technical aspects of the subject first, the more scientific material later. During the sophomore year teach the details of armamentarium, instrumentation and a technique for a thorough oral prophylaxis. In the third and fourth years, the clinical and histopathological aspects of periodontal disease and the modern methods of treatment should be emphasized.

Fourth: The important features of the lecture material may be stressed by including specific examination questions which require thought and knowledge of the subject for an adequate answer.

Fifth: Perhaps this point should be first on this list. The teacher in periodontology must impress the students that he is truly interested in this branch of dentistry and that he believes periodontology to be an

important field for the general practitioner to utilize to its fullest advantage.

Clinical Experience

One thing which will more than anything else determine the student's attitude toward periodontology is his experience in the dental clinic. Several factors will influence his opinion of this experience.

As mentioned in a previous paragraph, the attitude of the clinical teacher towards his subject and toward the student is extremely important. Students are quick to realize when a teacher is "putting in time" and we cannot expect the undergraduate to become enthused over a subject which the faculty treats in a lackadaisical fashion.

Of paramount importance in the proper orientation of the student in clinical procedures is the matter of diagnosis and treatment planning. He must learn that successful results depend upon a careful evaluation of the dental needs of the particular patient, followed by a definite, workable plan of treatment. First things must come first, and the sooner the student appreciates this the sooner he will become a capable practitioner. The order of treatments should be established somewhat as follows:

1. Relief of pain (emergency treatment).
2. Oral diagnosis and treatment planning.
3. Periodontal treatment (when indicated).
4. Restorative dentistry.

Under one above, we include the relief of toothache and also the excavation of deeply carious lesions which might result in pulp involvement unless treated at once.

In many cases it is not possible to complete the details of treatment planning until the results of periodontal therapy have been determined. This is particularly true in instances where certain "strategic" teeth carry a doubtful periodontal prognosis. The retention of such teeth would allow the placement of a fixed appliance, while their loss would necessitate the use of a removable prosthesis. The student must be impressed by the basic importance of periodontal therapy in such cases. In order to stress the importance of periodontology in general practice, the following points should receive emphasis in the clinical teaching of this subject:

1. History: Each student should be required to secure as much background information as possible concerning the general and dental history of the patient. The instructor, in the patient's presence, should review this material carefully, pointing out to the student every possible correla-

tion of general and dental disease. It is important that all interrelationships between restorative and periodontal problems be discussed.

2. Diagnosis: On the basis of the patient's history and the examination of the oral cavity, the student should be required to make the dental diagnosis and to suggest a plan of treatment. It is imperative that he be questioned thoroughly concerning the basis for his diagnosis and treatment plan. The student must be able to relate his plan for periodontal therapy to the treatment necessary in other fields of dentistry.

In order to differentiate as little as possible between the different departments in the dental school, it is advisable to use the same symbols and methods of recording data whenever possible. (See Fig. 1.)

3. Basic sciences: Whenever possible, point out to the student applications of his previous scientific training in furthering his understanding of periodontal disease. The applications of anatomy, histology, physiology, biochemistry, pathology, and microbiology are numerous if we but remember to speak in terms of these sciences. The alert, serious student experiences a thrill when he understands that the clinical appearance of his patient's gingival tissues can be explained in terms of altered tissue fluids, increased hydrogen ion concentrations and specific cellular changes. Likewise, when he understands the histological basis for stippling of the gingiva, the loss of stippling in gingivitis becomes of much greater interest.

The student must participate actively in all discussions relating to the patient he is treating. His interest will not be stimulated by a repetition of the instructor's lectures but if the important material from the lectures is discussed at the chair, in terms of the patient at hand, the practical applications of this material become apparent. No mention is made of the teaching of dietary or nutritional studies in periodontology for the reason that the next speaker will deal with that specific subject.

The dental student is an impressionable person so far as his experiences in dental school are concerned, hence the importance of the physical facilities in armamentaria utilized in teaching periodontology become apparent. If the student is to consider periodontal therapy an integral part of general practice, it is preferable that he do this work at the same location where he carries out restorative procedures. (Fig. 2.) His instruments should be placed in the cabinet so that he can in a moment carry out any procedure ordinarily required in general dentistry. Because this aspect of the student's training is psychologically important, the opportunity to establish a separate periodontology clinic in the new dental school at the University of Washington, was deemed unwise.

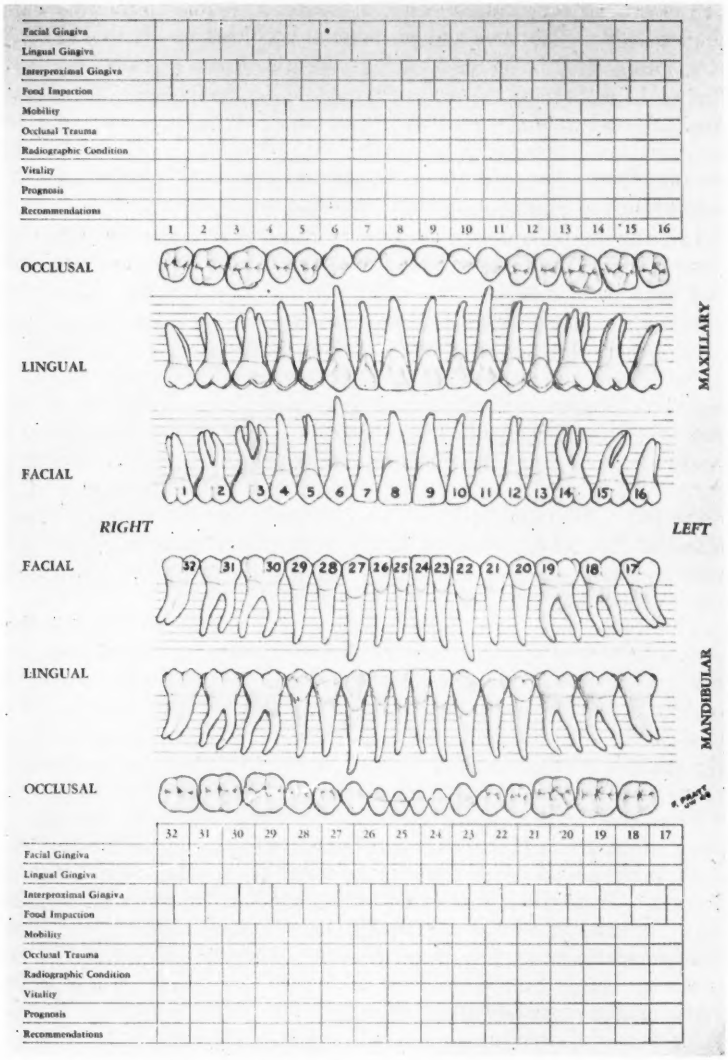

FIGURE 1. Tooth chart for recording findings relative to diagnosis and treatment planning in periodontia. Symbols which are applicable to records in more than one department should have the same connotation.

Since we are training men and women to serve the public as general practitioners of dentistry, it seems sensible that there should be a minimum of difference between the hand instruments used in restorative and periodontal procedures. Perhaps for the specialist in periodontology there is definite advantage in having a large variety of instruments with specially designed handles which may be of very different size, weight and balance from the instruments employed in restorative dentistry. However, there is a definite advantage in having the periodontal instruments used by the student be as similar as possible to those used in other phases of dental practice. (See Fig. 3.) There should be a maximum carry-over of digital skill from one field to another and this is enhanced by having the least possible variation between different sets of instruments.

There are a number of other subjects which could be included in this

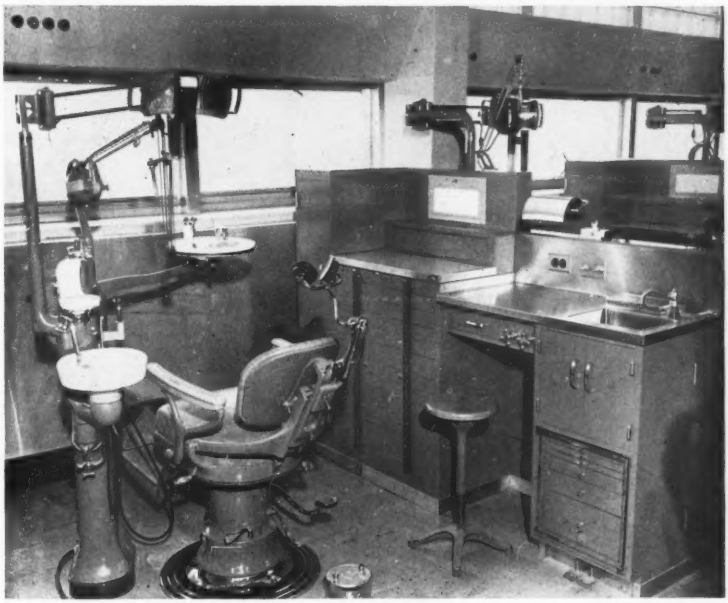

FIGURE 2. Photograph of the "individual office" arrangement to which the student is assigned for the entire year. University of Washington, School of Dentistry. The student carries out all clinical procedures in periodontia, operative dentistry, fixed partial dentures, and endodontia in this one location. Periodontology is emphasized as an important part of general practice by this arrangement.

discussion. The very great importance of proper oral hygiene measures in the establishment and maintenance of oral health might be covered in detail. The part which occlusal trauma plays in periodontal disease might also be discussed. The applications of nutritional and dietary information might be considered. However, sufficient material has been presented to indicate the basic methods of stressing the importance of periodontology in the general practice of dentistry.

This brief presentation has brought out nothing new or different. If it stimulates active discussion concerning this subject, the author will have achieved his objective.

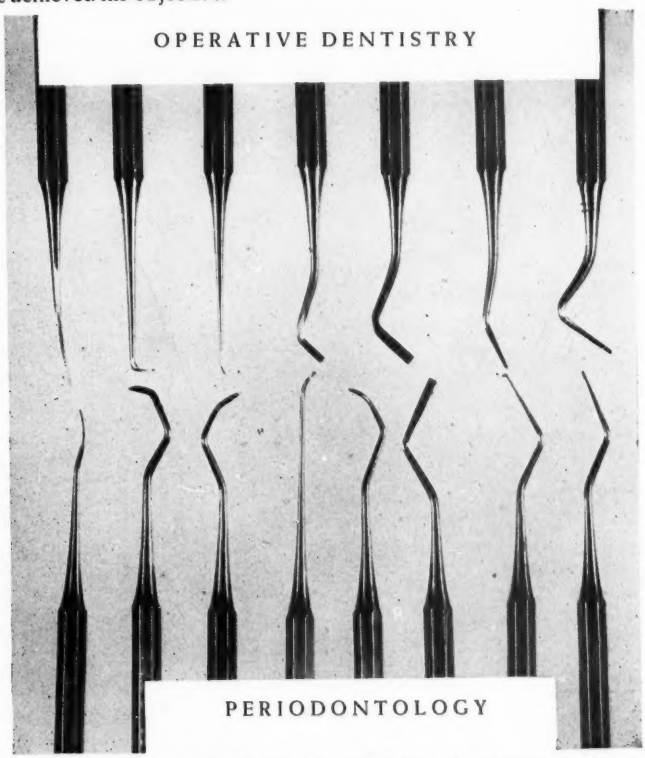

FIGURE 3. Photograph, comparing the size and shape of representative instruments from the periodontia and operative dentistry sets which are issued to the students. The identical handles and the marked similarity of balance and size in both sets of instruments allow maximum carry-over of digital training from one field to the other.

C. *Methods of Teaching Nutrition and Diet in the Course in Periodontia*

SAMUEL CHARLES MILLER, D.D.S.,[1] HARRY ROTH, D.D.S.,[2] and GEORGE J. WITKIN, D.D.S.[3]

Nutrition in Medicine and Dentistry

Dentistry may well be proud of its contribution to the science of nutrition in which it took the lead so many years ago. In a comparative study of the medical and dental literature in the years 1931-1933 it was found that 51 articles on nutrition were published in dental journals, while during the same period only seven were published in medical journals. It was not until 1938 that the proportion became equalized at 8.7 per cent in each group.

As late as 1943, Russell M. Wilder in a paper on "The Teaching of Nutrition in Schools of Medicine" said, "The apathy of most doctors regarding dietetics is astonishing. It is due, in part, to absorption in other fields of therapeutics. However, in large part, it also comes from lack of prior training in nutrition and thus from lack of knowledge of the subject. The simplest mathematical calculation seems to be beyond the grasp of many doctors. Counting calories and balancing intake and output of nitrogen or other nutrients present insurmountable mental hazards. Yet, much of modern medicine requires appreciation of the need for precision in its application. The haphazard therapy of the past is giving place in medicine to scientific application."

Before discussing methods of teaching we are confronted with the question, "Does the dentist have the right to prescribe diet?" A strong affirmative stand must be taken. The dentist must be taught the means of treating all diseases of the mouth and this includes oral manifestations of nutritional deficiencies. He should be able also to prescribe the type and composition of the diet with an eye to its direct local effect on the teeth, viz., detergency, alkaline-acid ratio and consistency. The student must be taught the means of production as well as elimination of these oral effects. He is not to be taught to treat conditions which are extraneous to his province such as diabetes, ulcerative colitis or anemia. However, he must be able to cooperate intelligently with the physician so that the diet which the physician advises will not be inimical to the

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[3]Assistant Professor of Periodontia, New York University College of Dentistry.

health of the periodontal and oral tissues. One or two examples are appropriate here: The soft pulpy diet some physicians advise for gastric or duodenal ulcers is far from beneficial to the teeth and periodontal tissues and interferes with the dentists' control of oral disease. With a broader approach mutual benefit can be obtained by the choice of foods that will not create such hazards and will still be of therapeutic value. Another example is the prescription by some orthopedists and endocrinologists of powerful forms of Vitamin D, e.g., Ertron, dihydrotachysterol, which raise the serum calcium by withdrawing the minerals from the boney tissues. The alveolar process being most susceptible to change is demineralized rapidly with resultant loosening of the teeth and exaggeration of periodontal disease.

A special committee of the Professional Education Section of the National Nutrition Conference for Defense called by the President in 1942 reported: "We recognize the inadequacy of the teaching of nutrition and dietary needs to medical and dental students. Much attention has been paid to this teaching in pediatrics and, more recently, in obstetrics in some schools. But, in general, the teaching is inadequate in other departments where the subject could be emphasized with great profit. Students are usually given sufficient training in the biochemical and physiological principles of nutrition, but we are of the opinion that this information is not appreciated nor effectively used by the student because he is not given sufficient training in the practical application of this basic information."

Preparation of Students in Preclinical Subjects Before Coming to Periodontia

Course in Biochemistry (Freshman Year)

Claus F. Hinck, A.M., Ph.D.[4]

Objective: To understand more fully the behavior of nutrients in the human body.

Method: The following topics are covered in lecture and laboratory, and their treatment takes up the entire freshman year:

The structure, chemical and physical behavior of carbohydrates
The chemistry of proteins and their degradation products
The chemistry of fats, and other important lipids
The energy requirements of the human organism under conditions of rest and while working
Direct calorimetry
Indirect calorimetry
Basal metabolism

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[4]Professor of Biochemistry, New York University College of Dentistry.

The distribution of the three main foodstuffs in diets
The importance of mixed diets
The accessory foodstuffs (vitamins)
The mineral requirements
The fate of carbohydrates, fats and proteins in metabolism

Comparative Anatomy, Dental Morphology and Occlusion

Finn J. Bronner, D.D.S.[5]

Objective: The course in Comparative Anatomy and Evolution includes nutrition as pertinent to the understanding of mammalian anatomical variations.

The search for food sources, and the fortuitous mutation of jaws, teeth and gastrointestinal tract, which made these organs adapted to various dietaries, is the history of experimental nutrition on a global scale—in mammals a mere 150 million years of trial and error.

Method: Lectures showing successful adaptation to the various dietaries of animals, including man, has always labeled the skull, the jaws, the jaw-movements, masticatory muscle-groups, teeth and the gastrointestinal tract with specific features—easily recognizable.

During the last 60 million years these features have invariably evolved in identical fashion, even in totally different animal groups. Thus, the marsupials of Australia and Tasmania, separated from the placentalians by ocean for the last 60 million years, have produced almost identical counterparts in jaws, jaw-movements, and teeth in Insectivores, Carnivores, Herbivores and Omnivores, in response to the same dietary requirements.

As a sobering influence on the student, who is exposed to the many controversial opinions about what man should eat, the basic facts as broadly outlined above, are given prominence in this course.

Department of Histology

Gerrit Bevelander, A.M., Ph.D.[6]

Objective: The work covered during the course of instruction in histology is to a large degree preparatory for the actual treatment of this topic in the subsequent studies of biochemistry, physiology, pharmacology and the clinical subjects.

Method:

I. In a study of the digestive tract and glands associated with this tract, each peculiarity in structure and arrangement is correlated with the general features of metabolism which the organ performs.

II. Again in connection with the oral cavity, differences in the structure of the oral mucosa are examined and functional correlations are drawn. Distribution of the salivary secretions are also studied.

III. The calcified tissues including the histogenesis of bone and teeth are taken up in a fairly detailed manner both as regards histologic features and dietary factors. This is also the case in regard to the endocrine system.

IV. In evaluating work of a nutritional nature which is covered in histology one can say that we attempt to establish a structural-functional groundwork upon which subsequent elaboration may be built in the several fields dealing with and bearing on the overall field of nutrition.

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[5]Professor of Comparative Anatomy and Dental Morphology, New York University College of Dentistry.

[6]Professor of Histology, New York University College of Dentistry.

Department of Oral and General Pathology

Charles C. Darlington, M.D.[7]

Objective: To acquaint the students with the effects of nutritional deficiencies on the oral tissues.

Method: Nutritional deficiencies whether primary or secondary in origin can affect the oral tissues. Consideration is given to the oral and periodontal manifestations which are apparent. This is done by lecture and demonstration wherever indicated.

Course in Nutrition Under Department of Pharmacology
Sophomore and Senior Years

Isaac Neuwirth, B.S., Ph.D.[8]

Objective: Each student is required to prepare a survey of his diet showing calories, amounts and proportions of primary foodstuffs, relations of different types of foods, minerals (calcium, phosphorus, iron, iodine), vitamins, and acid-base balance.

Method: The following subjects are taken up in lectures to the students:

1. Introductory lecture
   - Objective of instruction
   - Origin of dietary habits
   - Method of experimentation in nutrition
2. Functions of diet
   - Composition of normal diet (general)
3. Energy needs of body:
   - How obtained
   - Fuel value of foodstuffs
   - How determined
   - Factors involved
4. Primary foodstuffs (carbohydrates, fats, proteins) in diet
5. Mineral requirements of body
6. Water
7. Vitamins
8. Foods of plant and animal origin
9. The balanced diet
10. Relation of nutrition to teeth and periodontal tissues
    - Tooth formation
    - Dental caries
    - Periodontal disease

Results of Nutrition Questionnaire

Through a recent questionnaire sent to those in charge of periodontia teaching in the dental schools of the United States and Canada, replies for which were received from 24 schools, a survey was made of the teaching of nutrition and diet in departments of Periodontia. The results show a wide variance of methods and principles. Almost universal

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[8]Professor of Nutrition, Department of Pharmacology, New York University College of Dentistry.

agreement exists, however, on the role of nutrition and diet in relationship to periodontal disease. 87.5% of the teachers consider nutritional deficiency significant in the production of periodontal disease. 92.5% agree that the direct oral effect of the consistency and type of food is important in the causation of periodontal disease.

A great diversity of opinion exists on the role of occlusal defects as a cause of nutritional deficiency by interference with proper mastication. Only 54% agreed on such a possibility.

Nutrition, at present, is taught by 19 different departments in 24 of our dental schools and within the Periodontia Department most frequently (75% of the schools). 58% report that no formal division of their periodontia course is devoted to the clinical application of nutrition and diet. The methods of the remaining 42% vary so greatly in time and procedure that no organized figures can be given.

This study indicates that much cooperative planning is necessary in order to unify the teaching of nutrition in the Periodontia Departments of the various schools.

Place of Nutrition in the Teaching of the Etiology of Periodontal Disease

The entire approach to the nutrition course in a large eastern dental school was recently changed because of the challenging statement of a keen dental student: "If we had only studied Mr. M's diet when he first came to the periodontia clinic, we might have treated him more successfully.[8]

In presenting the subject of nutrition and diet to the student, we stress always, its great importance in the etiology of periodontal disease and show how such factors complicate many other previously considered unrelated causative factors.

Several conflicting opinions exist concerning the etiology of periodontal disease. There are also those who say that the cause is unknown. We share with many teachers the opinion that the cause is known but is never single, involving usually a combination of dysfunctional, irritational and systemic factors in varying proportions. We teach that diet may affect the periodontal tissues both by its direct oral action and through its systemic effect.

In the dysfunctional factors such items as excessive stress on the teeth, too powerful masticatory musculature, premature wear and indolent mastication are all related to the consistency and type of food as it enters the oral cavity.

[8]Nutrition Education in Dental Schools, Committee of Professional Education, American Dietetics Association; J. D. *Educ.*, *5*, 15; 1940 (Oct.).

In the irritational factors must be included the nondetergent diet, food impaction and the effects of the retention of foods such as protein putrefaction and carbohydrate degradation. A recent study by Butcher indicates the loss of protective cornification of the gingival and oral tissues when oily substances are permitted to remain on the mucosal surfaces.

Systemic factors should include in addition to all the obvious effects of nutrition and malnutrition on the endocrines, nervous system, vasomotor system and blood forming organs, the important periodontal and oral manifestations of acid-base disbalance, vitamin deficiency, protein deficiency, water depletion and mineral deficiencies.

The methods of detection and correction of all these factors are to be taught if the student is to be prepared to successfully cope with the many difficult and trying cases that will confront him at the school clinic and later in his office. (See Figure 1.)

Self Analysis and Practical Preparation

Objective: Towards greater motivation of the students by analyzing their own diets, in order to learn the factors relating to this problem; and so benefit the direct purposeful experience.

Method: (See Figures 2 to 6B)

a. Food Diary
b. Analysis Chart
c. Specific Recommendations (card)
d. Examples
   1. Good } Food Diary and
   2. Bad } Analysis Charts
e. Summary of Results of Class
f. Average Diet of Class
   1. Each student fills out a diet history chart for one week and analyzes this by the special evaluation chart which is supplied by the department. The evaluation is checked by an instructor specifically assigned for this project and its recommendations discussed.
   2. Students are invited to participate in actual nutritional research projects through the Students' Research Society.
   3. Students assigned to diagnosis and special procedures are shown methods and results of actual nutritional therapy in practical operation.

Undergraduate Teaching of Nutrition and Diet in the Periodontia Clinic

Objective: The application of the knowledge in actual practice. (Preclinical generalizations are made meaningful by actual concrete experiences.)

Methods:

1. Food Diary
2. Student's Analysis
3. Student's Recommendations
4. Group Demonstrations

Like many other schools, our institution has departed from the block system of teaching. Students now handle each case from start to finish and right at the outset, when diagnosis is being done, periodontia enters the picture. No case can reach any other department except for an emergency until it is passed by the Periodontia Department. Here it is decided whether periodontic treatment is necessary and which teeth are hopeless. If treatment is undertaken other procedures are predicated on the outcome of periodontal treatment. We have then, a fairly accurate control of the nutrition of almost every clinic patient. The department of Pedodontics works closely with us and uses the same clinical forms and teaching in nutrition so there is conformity in the teaching of this subject for the adult and the child. The importance of nutrition in gerodontia also is continually stressed. Thus, the student is made to realize that nutritional therapy and control is of importance at all age levels.

According to the Scientific Director of the Nutrition Foundation, Charles Glen King, "Children born today have a life expectancy of about eighteen years beyond the age that could be claimed for their grandparents. Good nutrition can make a contribution to those added eighteen years to make them years of vigorous living, not just survival."

To prepare the student for clinical practice, a full week of indoctrination in the practice of periodontia is given at the beginning of the Junior year. Included here is a session of three hours on dietary analysis and evaluation, and the use of the diet history and food evaluation charts.

Junior and Senior Clinical Teaching

Every patient placed under periodontal treatment is required to fill out a food diary chart for one week. The student analyzes this chart and makes specific written recommendations which are discussed with and approved by the instructor.

Lectures

Objective: To correlate the preclinical training and the actual application of this training to the periodontia patient.

Method:

a. Didactic and seminar lectures
b. Color slides of patients from clinic before and after treatment by corrective diet only
c. Actual patient presentation

Senior Year (at least six lecture hours are devoted to a discussion of diet and nutrition from the clinical standpoint.) The following topics are considered:

1. Has the dentist the right to prescribe diet
2. Diet fads versus scientific evidence
3. Relation of the diet which is good for the teeth and periodontal tissues to the diet for general health
4. Adequate and optimum diet
5. Difference between diet and nutrition
6. Correlation with digestion, assimilation, metabolism, endocrinology, neurology, and biochemistry as taught in the preclinical departments
7. Local and systemic effects of diet
8. Types of patients most likely to present effects of nutritional deficiencies
9. How dietary deficiency or imbalance affects the province of the dentist:
   a. Lowering of resistance of oral tissues to influence of local irritants and infection
   b. Lowered pain threshold
   c. Prolonged bleeding time
   d. Delayed healing
   e. Inflammatory reactions in temporomandibular joints
   f. Specific oral manifestations of nutritional deficiencies
   g. Specific effects on the periodontal tissues
   h. Specific effects on the teeth, e.g., poor structure in formation, malocclusion, or insufficient or excessive wear
10. Methods of evaluation and correction of nutritional deficiencies
11. Required reading—Chapter on Diet in its relation to Dental and Periodontal Disease in Miller's Textbook of Periodontia

12. Students are assigned in groups to study projects to be prepared and submitted. Each report is read (10 minutes) to the class by a representative of the group and discussed for ten minutes by other students in seminar fashion. All students had previously received summaries of the papers to be presented and thus are properly prepared for the discussion. The grade for the dietary evaluation and the class paper enters into the determination of the final term grade in Periodontia.

CHARTS AND TEACHING AIDS (See Figures 2 to 7)

1. Color slides and enlargements depicting oral manifestations and cases before and after therapy
2. Diet history charts
3. Diet analysis charts
4. Diet prescription charts
5. Wall chart for clinical application of diet evaluation.

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Newburgh, L. H., and Light, A. M.: Teaching of Nutrition to Medical Students: *J. Am. Dietet. A.*, 21, 209-210; 1945 (April).

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Whitehead, F. E.: Research in Nutrition Education; *J. Am. Dietet. A.*, 23, 310-317; 1947 (April).

Wilder, R. M.: Teaching of Nutrition in Schools of Medicine; *J. A. Am. M. Coll.*, 18, 145-157; 1943 (May).

Scholarships

Scholarships are currently announced in different fields and under different auspices as follows:

1. RESEARCH AND ALLIED FIELDS, through the Public Health Service, Federal Security Agency, Washington, D. C. (Address Research Fellowship Branch, Division of Research Grants and Fellowships, National Institutes of Health, Bethesda 14, Md.)

2. RESEARCH ASSISTANTSHIPS IN CHEMISTRY, through the American Dental Association and the American College of Dentists. (Address American Dental Association, Bureau of Chemistry, 212 East Superior Street, Chicago 11, Ill.)

ETIOLOGY OF PERIODONTAL DISEASE*

(S. C. Miller)

Dysfunctional

1. *Overfunction*
   a. Excessive stress on teeth
   b. Insufficient periodontal support
   c. Too powerful masticatory muculature
2. *Underfunction*
   a. Premature wear (natural or artificially produced)
   b. Nonocclusion
   c. Indolent mastication
3. *Abnormal habits*
   a. Unilateral mastication
   b. Abnormal biting habits
   c. Clenching
   d. Bruxism and bruxomania

Irritational

1. *Abnormal anatomy*
   a. Tooth form
   b. Tooth position
2. *Deposits on the teeth*
3. *Nondetergent diet*
4. *Food impaction*
   a. Vertical
   b. Horizontal
5. *Mechanical irritants*
   Cavity margins, improper inlay or filling margins; orthodontic appliances, bridges, clasps or dentures which impinge upon or irritate the gingivae
6. *Chemical irritants*
7. *Atmospheric irritants* (mouthbreathing)
8. *Improper toothbrushing*
9. *Improper orthodontic procedure*

Systemic

1. *Faulty nutrition*
   a. Acid-base disbalance
   b. Vitamin deficiency
   c. Mineral deficiency
2. *Debilitating diseases*
3. *Blood dyscrasias*
4. *Endocrine dysfunction*
5. *Pregnancy*
6. *Allergies and drug idiosyncrasies*
7. *Metallic poisonings*
8. *Psychosomatic factors*

*From S. C. Miller: Textbook of Periodontia (ed. 3), Philadelphia, The Blakiston Co. 1950.

FIGURE 1. Etiologic Chart on which those factors with dietary relations are underlined.

1. Is this your average diet for the past three or four years? Yes ☐ No ☐
   If not, please list changes.....
2. Is your appetite good? Yes ☐ No ☐
   Eater—Large.....small..... moderate.....
3. Do you eat at regular hours generally? Yes ☐ No ☐
4. Do you ever have distress after taking foods? Yes ☐ No ☐
5. Do you have gas or sour eructation from your stomach? Yes ☐ No ☐
6. What foods if any disagree with you?.....
7. What foods are you avoiding?.....
   For what reason?.....
8. Do you frequently eat between meals? Yes ☐ No ☐
   If yes, list on reverse side in column indicated.
9. Are you fond of meats? Yes ☐ No ☐; Fats, Yes ☐ No ☐;
   Vegetables, Yes ☐ No ☐; Cake, Yes ☐ No☐; Bread, Yes ☐ No ☐;
   Candy, Yes ☐ No ☐; Milk, Yes ☐ No ☐
10. Approximately how much do you smoke daily?.....
11. How many alcoholic beverages do you have weekly?.....
12. Are you taking any vitamin concentrates? Yes ☐ No ☐
    If yes, list name or names of products.....
    How long have you been taking them.....and upon whose advice?.....

PERSONAL REPORT

1. Do you sleep well? Yes ☐ No ☐
   How many hours, generally?.....
2. Are you constipated at present? Yes ☐ No ☐
   Does this occur often.....seldom.....
   Do you take laxatives regularly.....often.....seldom..... never.....
3. How many times do you pass water during the day?.....
   During the night.....
4. Do you tire easily? Yes ☐ No ☐
5. Do you work under a strain? Yes ☐ No ☐
6. Have you recently lost weight? Yes ☐ No ☐
   Have you recently gained weight? Yes ☐ No ☐
7. Have you any skin disease? Yes ☐ No ☐
8. Did you have a healthy childhood? Yes ☐ No ☐
9. Do you prefer outdoors .....indoors .....both.....
10. Draw a line thru the following you have had: measles, mumps, twitching of face, rheumatism, tonsillitis, frequent earache, whooping cough, chicken pox, diphtheria, scarlet fever, appendicitis, meningitis, small-pox, asthma, bronchitis, frequent head colds, frequent chest colds, pleurisy, pneumonia, hayfever, hives, faint easily, headache, sinusitis.
11. Are you taking any medicine now? Yes ☐ No ☐
    If so please list.....

MOUTH CARE

1. What dentifrice do you use?.....
2. What toothbrush do you use?.....
3. When do you brush your teeth?.....
4. Were you instructed on a method of brushing? Yes ☐ No ☐

FIGURE 2.

Periodontia Department
New York University
College of Dentistry
209 East 23rd Street
New York City

Write down everything you eat.

FOOD DIARY

DATE	BREAKFAST	LUNCH	DINNER	BETWEEN MEALS List Time of Day as Well as Food Taken

This chart modified by Lillian Zam, D.H., from the D. C. Jarvis Food Diary

Patient's Name

FIGURE 3. Food Diary Chart to be used by the patient for recording a week's dietary intake. Specific questions on the back are to be answered by the patient.

VEGETA

ARTICHO
ASPARAG
BEANS
BEANS,
BEETS
BEET GR
BROCCOL
BRUSSEL
CABBAGE
CARROTS
CAULIFL
CELERY
CHARD
CHOP SU
CHOW ME
COLLARDS
CORN
CORN, C

FRUITS

APPLE
APPLE SA
APRICOTS
AVOCADO
BANANA
BERRIES
CHERRIES
CRANBERR

MILK

ACIDOPH
BUTTERMI
CHEESE,
CHEESE,
CREAM,

PROTE

KIDNEY
LIVER
SPLEEN
SWEETBRE

Contain
especial
and A,
D, etc.

FATS:

BACON,
BUTTER
COCONUT,
CORN OIL
COTTONSE
CRISCO
LARD
MINERAL
OLIVE O
OLIVES,
OLIVES,
OLEOMARG
PEANUT
PEANUT
SALAD O
SALAD DR
SHORTEN

Contain
tocopher

CEREAL

iron, vi

BARLEY
CORNMEAL
FARINA
MACARONI
CHEESE
OATMEAL
POPCORN
RICE
SPAGHETT
TAPIOCA
WHEAT
HOMINY

Listed

RECOMM

VEGETA

MILK:

FATS:

CEREAL

VITAMI

NAME:

VEGETABLES: Contain vitamin A, some C, minerals, protein, carbohydrate, fat, etc.

ARTICHOKE	50	CUCUMBER	25	POTATO	100
ASPARAGUS	20	DANDELION	25	POTATO, SWEET	150
BEANS	200	EGGPLANT	30	PUMPKIN	25
BEANS, SOY	200	ENDIVE	10	RADISHES 5	10
BEETS	50	ESCAROLE	25	ROMAINE	25
BEET GREENS	50	KALE	30	RUTABAGA	25
BROCCOLI	50	LENTILS	200	SAURKRAUT	20
BRUSSEL SPROUTS	40	LETTUCE	30	SPINACH	25
CABBAGE	35	MUSHROOMS	50	STRING BEANS	40
CARROTS	50	MUSTARD GREENS	30	SUCCOTASH	75
CAULIFLOWER	30	OKRA	30	TOMATO	25
CELERY	25	ONIONS, CREAMED	100	TURNIP TOPS	25
CHARD	25	ONIONS, RAW	50	VEG. SOUP	100
CHOP SUEY	300	PARSLEY	15	WATERCRESS	25
CHOW MEIN	200	PARSNIPS	75	YAM	50
COLLARDS	20	PEAS, GREEN	100		
CORN	50	PEPPERS, GREEN	15		
CORN, CANNED	100				

The calorie values given are approximate for 1/2 cup portions.

CALORIE TOTAL: 475 170 200 20 100 395 270 170 50 250 150 60 75 110 140 2620

FRUITS: Contain vitamin C, A, B complex, minerals, etc.

APPLE	100	FIGS	100	PEACH	90
APPLE SAUCE	150	GRAPEFRUIT ½	50	PEAR	50
APRICOTS	180	" JUICE	100	PINEAPPLE	100
AVOCADO	200	GRAPE JUICE	100	PLUM	50
BANANA	170	LEMON	25	PRUNE JUICE	150
BERRIES	100	MELONS	50	TOMATO JUICE	30
CHERRIES	75	ORANGE	100		
CRANBERRIES	50	ORANGE JUICE	100		

The calorie values given are approximate for 4 ounces of fruit juice or one piece of fruit.

650 450 300 150 175 100 200 2700

MILK PRODUCTS: Contain carbohydrates; protein, fats, iron, phosphorus, calcium (Gm in qt.) vitamin A, etc.

ACIDOPHILUS	90	CREAM, SWEET, 1 OZ	100
BUTTERMILK	90	ICE CREAM, SML.	100
CHEESE, 1OZ.	100	MILK, 8 OZ.	150
CHEESE, COTTAGE, 2 OZ.	100	MILK DESSERT	100
CREAM, SOUR, 1 OZ.	100	YOGURT	80

EGGS: Contain protein, fat, iron calcium, vitamins A, B complex, D, etc.

1 egg approximately 75 calories

100 100 1900 250 100 3550

PROTEINS: *(Calorie values listed are approximate for four ounce portions)*

KIDNEY	150	BEEF	250	FISH, CANNED	100	BEANS	200
LIVER	150	BROTH	125	" , FRESH	100	NUTS, 1 OZ.	200
SPLEEN	150	HAM	300	" , SALT	150	PEANUTS 3/4 OZ.	200
SWEETBREAD	150	LAMB	150	" , SMOKED	200	" BUTTER	100
		PORK	400	SARDINES	100	PEA, BEAN SOUP	300
Contain protein, minerals—especially iron—and vitamins A, B1, riboflavin, C, D, etc.		POULTRY	150	SHELLFISH	100	PEAS, DRIED	200
		VEAL	150				
		Contain protein, fat, iron, Calcium, phosphorus, vitamins A, B, etc.		Contain protein, iron, vitamin A, etc.; saltfish also contains iodin.		Contain protein, minerals, fat, vitamin A, B complex, etc.	

700 350 150 100 150 1850

FATS: (Calories for tablespoonful)

BACON, 1 OZ.	125	APRICOTS, 1 OZ.	100
BUTTER	100	CHOCOLATE, 1 OZ.	250
COCONUT, FRSH—1"	100	COCOA, SWEET	250
CORN OIL	100	COFFEE, BLACK	0
COTTONSEED OIL	100	COFFEE, & MILK	35
CRISCO	150	COFFEE, CREAM	50
LARD	150	" & Sugar	65
MINERAL OIL	000	DATES, 1 OZ.	100
OLIVE OIL	125	FIGS, 1 OZ.	100
OLIVES, Green (a)	100	FOUNTAIN DRINK	150
OLIVES, RIPE (large)	50	HONEY, TSP.	15
OLEOMARGARINE	100	JAM, TBSP.	90
PEANUT BUTTER	100	JELLY, TBSP.	80
PEANUT OIL	125	MAPLE SYRUP, TBSP.	100
SALAD OIL	100	MOLASSES, TBSP.	35
SALAD DRESSING	200	PIE	300
SHORTENING	100	PRUNES, 1 OZ.	125
		RAISINS, 1 OZ.	100
		SUGAR, TSP.	15
		SWEET DESSERT	200
		TEA (as for coffee)	0

Contain fat, Butter and cream contain vitamin A, D, etc.

SUGARS: Refined sugar contains carbohydrate, no minerals. Natural sugars contain carbohydrate, minerals, etc.

CONDIMENTS:

CATSUP	
CAYENNE PEPPER	
CHILE SAUCE	
CURRY	
HORSERADISH	
KELP	
MUSTARD	
PAPRIKA	
PARSLEY, DRIED	
PEPPER	
PICKLES, SOUR	
" SWEET	
RELISHES	
SALT	
TABASCO	
VINEGAR	
WORCESTERSHIRE	

1380 350 50 150 150 125 300 150 125 125 125 4035

CEREALS: Contain chiefly starches; wholegrain cereals contain also calcium, phosphorus, iron, vitamins B complex, E., etc.

BARLEY	125
CORNMEAL	125
FARINA	125
MACARONI & CHEESE	100
OATMEAL	125
POPCORN	30
RICE	125
SPAGHETTI	125
TAPIOCA	150
WHEAT	125
HOMINY	65

Listed calorie values are approximate for a 1 cup portion.

BREAD: Refined flour contains starch and protein; wholegrain flour also contains the ingredients of whole cereals; enriched contains vitamins B_1 and niacin.

BISCUITS (2)	100
CAKE, PLAIN	200
CORN	100
CRACKERS (6)	100
ENRICHED—1 SLICE	100
GRAHAM	100
MUFFINS (2)	100
PANCAKE (1)	100
RYE — 1 SLICE	100
RYECRISP (4)	100
WHITE (ONE SLICE)	100
WHOLEWHEAT "	100

105 100 1715 2900

TOTAL CALORIES FOR PERIOD OF TEST: 17655

DAILY CALORIE INTAKE: 2522

RECOMMENDATIONS:

VEGETABLES: Adequate FRUITS: Adequate

MILK: Adequate CHEESE: Adequate EGGS: Adequate

FATS: Adequate PASTRIES - Adequate SUGARS: Adequate

CEREALS: Whole grain Cereals BREAD: Adequate

VITAMIN OR MINERAL SUPPLEMENTS:

NAME: Fred Abadan DATE: 11-16-48

VEGETABLES: Contain vitamin A, some C, minerals, protein, carbohydrate, fat, etc.

ARTICHOKE	50
ASPARAGUS	20
BEANS	200
BEANS, SOY	200
BEETS	50
BEET GREENS	50
BROCCOLI	50
BRUSSEL SPROUTS	40
CABBAGE	35
CARROTS	50
CAULIFLOWER	30
CELERY	25
CHARD	25
CHOP SUEY	300
CHOW MEIN	200
COLLARDS	20
CORN	50
CORN, CANNED	100
CUCUMBER	25
DANDELION	25
EGGPLANT	30
ENDIVE	10
ESCAROLE	25
KALE	30
LENTILS	200
LETTUCE	30
MUSHROOMS	50
MUSTARD GREENS	30
OKRA	30
ONIONS, CREAMED	100
ONIONS, RAW	50
PARSLEY	15
PARSNIPS	75
PEAS, GREEN	100
PEPPERS, GREEN	15
POTATO	100
POTATO, SWEET	150
PUMPKIN	25
RADISHES 5	10
ROMAINE	25
RUTABAGA	25
SAUERKRAUT	20
SPINACH	25
STRING BEANS	40
SUCCOTASH	75
TOMATO	25
TURNIP TOPS	25
VEG. SOUP	100
WATERCRESS	25
YAM	50

The calorie values given are approximate for 1/2 cup portions.

CALORIE TOTAL: 300, 120, 100, 50, 300 = 970

FRUITS: Contain vitamin C, A, B complex, minerals, etc.

APPLE	100
APPLE SAUCE	150
APRICOTS	100
AVOCADO	200
BANANA	170
BERRIES	100
CHERRIES	75
CRANBERRIES	50
FIGS	100
GRAPEFRUIT ½	50
" JUICE	100
GRAPE JUICE	100
LEMON	25
MELONS	50
ORANGE	100
ORANGE JUICE	100
PEACH	50
PEAR	50
PINEAPPLE	100
PLUM	50
PRUNE JUICE	150
TOMATO JUICE	30

The calorie values given are approximate for 4 ounces of fruit juice or one piece of fruit.

CALORIE TOTAL: 300, 100 = 600

MILK PRODUCTS: Contain carbohydrates; protein, fats, iron, phosphorus, calcium (Gm in qt.) calcium (Gm in qt.) vitamin A, etc.

ACIDOPHILUS	90
BUTTERMILK	90
CHEESE, 1OZ.	100
CHEESE, COTTAGE, 2 OZ.	100
CREAM, SOUR, 1 OZ.	100
CREAM, SWEET, 1 OZ	100
ICE CREAM, SML.	100
MILK, 8 OZ.	150
MILK DESSERT	100
YOGURT	80

EGGS: Contain proteins, fat, iron calcium, vitamins A, B complex, D, etc.

1 egg approximately 75 calories

CALORIE TOTAL: 300, 2100, 500 = 2900

PROTEINS: *(Calorie values listed are approximate for four ounce portions)*

KIDNEY	150
LIVER	150
SPLEEN	150
SWEETBREAD	150

Contain protein, minerals--especially iron and vitamins A, B1, riboflavin, G, D, etc.

BEEF	250
BROTH	125
HAM	300
LAMB	150
PORK	400
POULTRY	150
VEAL	150

Contain protein, fat, iron, Calcium, phosphorus, vitamins A, B, etc.

FISH, CANNED	100
" , FRESH	100
" , SALT	150
" , SMOKED	200
SARDINES	100
SHELLFISH	100

Contain protein, iron, vitamin A, etc.; saltfish also contains iodin.

BEANS	200
NUTS, 1 OZ.	200
PEANUTS 3/8 OZ.	200
" BUTTER	100
PEA, BEAN SOUP	300
PEAS, DRIED	200

Contain protein, minerals, fat, vitamin A, B complex, etc.

CALORIE TOTAL: 1800, 100, 1200, 500, 150 = 3750

FATS: (Calories for tablespoonful)

BACON, 1 OZ.	125
BUTTER	800
COCONUT, FRSH-1"	100
CORN OIL	100
COTTONSEED OIL	100
CRISCO	150
LARD	150
MINERAL OIL	000
OLIVE OIL	125
OLIVES, Green (6)	100
OLIVES, RIPE (large)	50
OLEOMARGARINE	100
PEANUT BUTTER	100
PEANUT OIL	125
SALAD OIL	100
SALAD DRESSING	100
SHORTENING	150

Contain fat, Butter and cream contain vitamin A, D, etc.

SUGARS: Refined sugar contains carbohydrate, no minerals. Natural sugars contain carbohydrate, minerals, etc.

APRICOTS, 1 OZ.	100
CHOCOLATE, 1 OZ.	250
COCOA, SWEET	250
COFFEE, BLACK	—
COFFEE, ½ MILK	35
COFFEE, CREAM	50
" "-1 SUGAR	65
DATES, 1 OZ.	100
FIGS, 1 OZ.	100
FOUNTAIN DRINK	150
HONEY, TSP.	15
JAM, TBSP.	40
JELLY, TBSP.	40
MAPLE SYRUP, TBSP.	100
MOLASSES, TBSP.	35
PIE	300
PRUNES, 1 OZ.	125
RAISINS, 1 OZ.	100
SUGAR, TSP.	15
SWEET DESSERT	200
TEA (no milk or sugar)	

CONDIMENTS:

CATSUP ✓
CAYENNE PEPPER
CHILE SAUCE
CURRY
HORSERADISH
KELP
MUSTARD ✓
PAPRIKA ✓
PARSLEY, DRIED
PEPPER
PICKLES, SOUR
" SWEET ✓
RELISHES ✓
SALT ✓
TABASCO
VINEGAR
WORCESTERSHIRE

CALORIE TOTAL: 125, 300, 250, 300, 310 = 1715

CEREALS: Contain chiefly starches; wholegrain cereals contain also calcium, phosphorus, iron, vitamins B complex, E., etc.

BARLEY	125
CORNMEAL	125
FARINA	125
MACARONI & CHEESE	100
OATMEAL	125
POPCORN	35
RICE	125
SPAGHETTI	125
TAPIOCA	150
WHEAT	125
HOMINY	65

Listed calorie values are approximate for a 1 cup portion.

BREAD: Refined flour contains starch and protein; wholegrain flour also contains the ingredients of whole cereals; enriched contains vitamins B_1 and niacin.

BISCUITS (2)	100
CAKE, PLAIN	200
CORN	100
CRACKERS (6)	100
ENRICHED-1 SLICE	100
GRAHAM	100
MUFFINS (2)	100
PANCAKE (1)	100
RYE - 1 SLICE	100
RYECRISP (6)	100
WHITE (ONE SLICE)	100
WHOLEWHEAT "	100

CALORIE TOTAL: 900, 600, 1400, 500, 600 = 4000

TOTAL CALORIES FOR PERIOD OF TEST: 13,935

DAILY CALORIE INTAKE: 1,991

RECOMMENDATIONS:

VEGETABLES: Have a raw salad everyday FRUITS: Raw and Cooked fruits

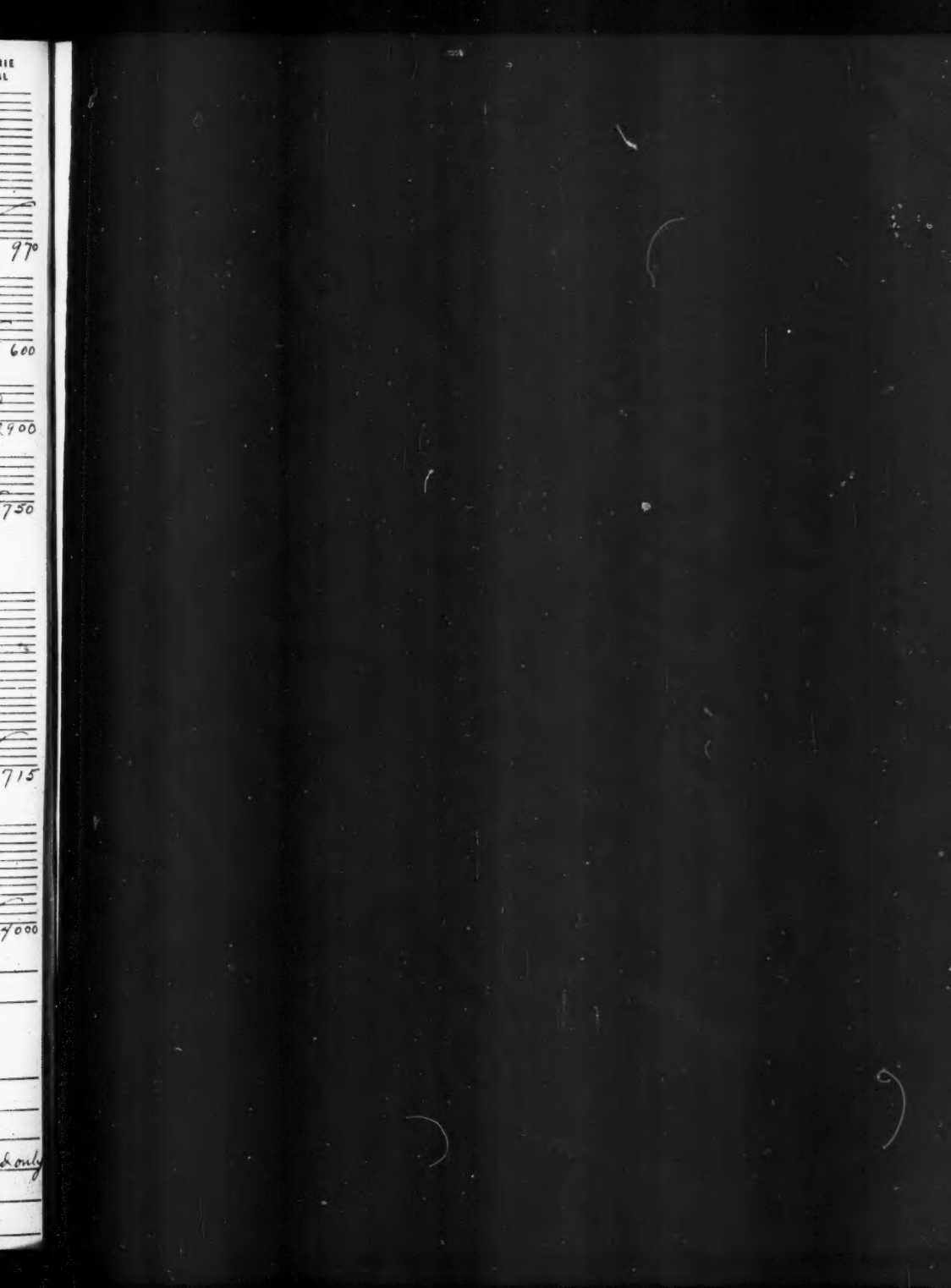
MILK: Adequate CHEESE: More all types EGGS: Have one a day

FATS: Adequate - PROTEINS - More liver, etc (organ meats) SUGARS: Less refined sugars.

CEREALS: Whole grain Cereals BREAD: Adequate - Use whole grain bread only

VITAMIN OR MINERAL SUPPLEMENTS: May supplement diet with Vitamins B and C

NAME: Donald Linn DATE: 11-16-48



NEW YORK UNIVERSITY
COLLEGE OF DENTISTRY

Department of Periodontia

The proper diet for a *normal* individual *should include* the following:

1. *Fruits*—oranges, grapefruit, raspberries, apples, pineapples, prunes, bananas, etc.
2. *Vegetables*—all in abundance, especially carrots, lettuce, celery, cabbage, cauliflower, string beans, green peas, beets, asparagus, spinach, tomatoes, etc. Some raw vegetables every day. Never boil vegetables—steam them.
3. *Two to four glasses of milk a day*, cream, dairy products, etc. (Take milk at meal times.) Do not use chocolate flavors or jam in milk.
4. *Mild cheeses*—cottage, cream, etc.
5. *Butter*—three teaspoonfuls daily.
6. *Cod Liver Oil*—one teaspoonful a day. Sept. 15th to June 15th.
7. *Soups*—creamed, chowder, pureed, etc.
8. *Meats*—organ meats (liver, brains, sweetbreads) at least once a week. Muscle meats (steaks, beef, chops, etc.), three times a week.
9. *Fish*—fresh cod, halibut, bass, or lake fish, once or twice a week.
10. *Eggs*—one or two daily, not fried.
11. *Bread*—whole wheat, rye or pumpernickel—sparingly.
12. *Cereals*—whole wheat—sparingly.
13. *Sweets*—natural, dates, raisins, figs, brown sugar, honey.
14. *Water*—at least three to four glasses a day.

(See other side for specific recommendations.)

FIGURE 6-A.

NEW YORK UNIVERSITY
COLLEGE OF DENTISTRY
DEPARTMENT OF PERIODONTIA
SPECIFIC DIETARY ADVICE for:

M..... Date.....

Signed.....

(See other side for elements of a complete diet.)

FIGURE 6B. Obverse and reverse sides of chart used for dietary prescription.

DIETARY ANALYSIS

PURPOSE: To evaluate role of diet in etiology, improve diet for better systemic health, periodontal resistance and caries resistance.

METHOD:

Chart for dietary analysis

Determine:

Acid producing
Alkaline producing
Mineral content
Vitamin content
Roughage content
Substitutions and supplements required

PATIENT EDUCATION:

Corrected diet will improve *his*
Health in general
Dental health specifically { Periodontal / Caries reduction }

FIGURE 7. Chart of Summary of Dietary Analysis which is posted on the wall of the Periodontia clinic.

D. *Methods of Teaching Drug Therapy in the Periodontia Course in Dental Schools*[1]

S. LEONARD ROSENTHAL, D.D.S.,[2] *Philadelphia*

The dual role of dentist-teacher imposes a two-fold obligation: We must keep abreast of scientific advances in both dentistry and education. Since this paper is to deal with teaching methods, let me remind you of the five steps in the teaching process as outlined by Herbart: Preparation, motivation, presentation, application, and generalization. We shall use these steps, as the basis for discussion.

PREPARATION

Preparation is largely an administrative problem. In planning the curriculum of the school and the correlation of the work by departments, the faculty will decide what is to be taught and why, where, when, and by whom. Obviously, medication is the concern of many departments;

[1]Presented to the American Association of Dental Schools at Chicago, June 28, 1949.
[2]Assistant Professor of Periodontia, School of Dentistry, Temple University.

obviously, an alert faculty must itself be thoroughly conversant with the values of all therapeutic agents, conducting ceaseless research as new ones are discovered.

Motivation

The ideal student is self-motivated by intellectual curiosity. This species is rare. But we can emphasize the fact that a practitioner is responsible both morally and legally for any untoward effects of medication used by him or under his direction. The numerous deaths from Elixir of Sulfanilamide for which the practitioner, not the pharmaceutical manufacturers, paid the penalty is a case in point. The average dentist is woefully ignorant of the possibilities, limitations and dangers of drug therapy. The Pure Food and Drug Act and the powers of the Federal Trade Commission are too restricted for our adequate protection. If dentists were properly informed, the great quantity of literature with unwarranted and fantastic claims, the advertisements for secret formulae and magic cures would cease to bring the lush dividends which make them profitable. Recently the commercial exhibits of state and national meetings have featured Xttrium, a few cents' worth of Dakin's solution sold to us for $17. Worse than that was the actual destruction of teeth caused by the use of Taxi and Tartaroff, solutions of hydrochloric acid advertised to remove calculus the easy way. Motivation, then, should be accomplished by alerting the students to the dangers to which ignorance exposes them, to the financial advantages their knowledge will yield, and most important, the service that their knowledge will render the patient. The Council of Dental Therapeutics is more reliable than the most beautifully lithographed advertisements.

Presentation

It is a psychologic axiom that learning is facilitated by a variety of approaches to the same subject, rounding out the picture and providing the repetition which fixes information in mind. Presenting the role of medication in periodontal disease should devolve upon three departments: pharmacology, bacteriology, and periodontia. A background of physiology and biochemistry is, of course, essential.

Pharmacology should include those substances which are used topically. The mechanism as well as the effect of drug action is not too advanced for students who have completed a course in biochemistry. Incompatability, not only of one drug with another, but also with the contents of the oral cavity should be stressed. For example, chlorine-liberating compounds will blacken the chromium alloys used in partial

dentures and form a black stain upon the teeth in the presence of amalgam fillings.

Bacteriology should include didactic and laboratory studies of antibacterial agents. The defense mechanisms of bacteria should be emphasized. The ease with which microorganisms acquire a tolerance to large amounts of medicaments which are ordinarily toxic to them in small doses makes an impressive demonstration. The dark-field microscope will show the protective coagulum formed around the bacterial cell by the action of a caustic on saliva and the continued motility of the uninjured bacteria. When examples of caustic action on the oral tissues are met in the clinic, the limited antibacterial action can be recalled to mind. When the student learns that anaerobes form peroxides in the normal course of their metabolism together with an excess of catylase to destroy it, when they see the reducing power of saliva, and when they see the great concentrations of oxygen which these microorganisms can withstand, they will never expect more than mechanical cleansing from oxygen-liberating compounds.

An evaluation of laboratory reports is essential. The value and limitations of the Rideal-Walker and other tests should be explained. The student must understand that destruction of B. typhosus in 15 seconds in vitro by preparation X does not mean that X is of value in vivo for oral infections caused by other organisms.

Naturally the department of periodontia will cover in greatest detail medication in its own field. The tendency in many schools is to ignore medication and to present periodontal treatment as a purely mechanical procedure lest the students rely too heavily upon drugs. With the type of student in our dental schools today, there should be no such apprehension. Certainly every possible measure to alleviate disease should be utilized.

While drugs are usually adjuncts in treatment, not cures, there are many substances which are useful such as disclosing solutions, topical anesthetics, preparations for hypersensitive dentine, phenol in pocket treatment, oxygen in reducing inflammation, surgical cements, and chemosurgical agents.

In addition to their role as infective agents, bacteria act as irritants. The use of antibacterial agents should be understood and the desirable characteristics listed. By far the greatest need for medication is in the treatment of such acute infections as Vincent's infection and pericoronitis. Although the function of antibacterial medication is limited to control of bacteria, drugs should be employed which are not destructive of the

hard and soft tissues and which act so quickly that the removal of predisposing factors is not delayed.

The composition, mode of action, efficiency and limitations of the various groups of medicaments may be covered in lectures and demonstrations.

The selection of medicaments to control infection requires a knowledge of desirable drug properties. A drug should: be efficient in the presence of organic matter, possess low surface tension, act speedily, have power of penetration, have maximum efficiency at mouth temperature, be stable at room temperature, be completely soluble in water, be efficient in high dilution, be homongeneous in composition, be neutral in reaction, be low in cost. It should not be toxic to tissue nor hinder repair processes, be corrosive to teeth or restorations, be unduly specific, have objectionable odor or taste, nor should it stain. No known medicament fulfills all these requirements; there must be discrimination to fit the need.

We must stress again and again that the object of medication in these acute infections is control of the bacterial invasion, after which treatment is a periodontal problem. An efficient drug will require but one application so that the removal of calculus and other predisposing causes may be carried out as soon as possible to prevent recurrence.

Bacteria can be eradicated by physical means as well as by bacteriostasis or bactericidal action. Heat which can be well tolerated by the tissues can create an unfavorable environment for mesophilic organisms which, of course, include those pathogenic to man. In addition, heat induces a local hyperemia and leucocytosis, thus increasing the local body defences. To combine heat with mechanical flushing, we employ a physiologic saline mouth douche at 120°F. which is simple, cheap and efficient. Here we should restate that mouth washes and oxygen-liberating compounds act as mechanical cleansers. Proprietary mouth washes can not be bactericidal. In order to function despite the great dilution by the constant flow of saliva, such solutions would have to be so concentrated that tissue injury would be inevitable. The continued use of such preparations would enable the bacteria to acquire tolerance.

Discussion should also include those antibacterial compounds which should be avoided. The first of these is the caustics. Here the findings in the bacteriology department can be reviewed. The damage to the gingivae from such caustics as chromic acid can be shown by photographs. A demonstration can be given by coating a freshly extracted tooth with paraffin to protect one half its surface and dropping it into a solution of chromic acid for a short time. After washing and stripping

off the paraffin, the specimen can be dropped into a dye. The porosity of the partially dissolved enamel and cementum will be dramatically illustrated.

Dyes have poor power of penetration and are more toxic to tissue than to bacterial cells. Dyes are too selective to be valuable bactericides. When the student realizes that a basic dye is only effective if the bacterial cell center has a pH of 5, he will be less likely to paint his patients red, white and blue.

The most efficient antibacterial agents are iodine, the quaternary ammonium compounds, organic arsenicals, certain mercurials, zinc oxide-eugenol pastes, sodium carbonate, penicillin and streptomycin. The action of these drugs, especially the antibiotics, should be given in detail with the advantages and limitations of each.

The question of a suitable vehicle for medicaments should be understood. The greatest number of bacterial invaders are found at the depths of microscopic crevices below the surface of the mucosa. In order to reach the microorganisms, the solution must be miscible with saliva and must penetrate organic and inorganic debris. Water best fulfills this requirement. Although alcohol has a lower surface tension, its coagulating action makes it useless.

Information should be presented to the students through diversified appeals to the senses. Lectures may be implemented by mimeographed sheets, by slides and moving pictures. Television will doubtless play its part in the future. A selected bibliography may be distributed, and reports, written or oral, required. Always remember that the final examination tests both student and instructional staff.

Application

To initiate the beginner, demonstrations of the use of medicaments may be performed by the instructor before single students or small groups. John Dewey's principle of "learning by doing" operates to maximum advantage in the dental clinic. Mixing and application of surgical cements, cauterization of pocket epithelium, the use of pocket seals, disclosing solutions, and topical anesthetics by the student will develop the necessary motor skills.

Every student should be required to treat at least one case of bacterial stomatitis. It is a condition he will meet many times after graduation, and his reputation will depend on the speed with which he affords relief. By actual practice, he will learn to isolate the tissues to prevent dilution of the drug with saliva.

If several efficient preparations are used in the clinic, students will learn by comparison that a number of drugs will produce satisfactory results. Sad experience will prove to those who try the easy road that medicaments alone will not cure.

Generalization

In the fourth year, interested students may be encouraged to form a study group. Simple original problems can be suggested and supervised by the faculty adviser. Results can be discussed at informal meetings, and published in the school publication. In addition to the knowledge gained, research technics will be painlessly acquired and an occasional individual may be stimulated to continue research after graduation. In the past decade a bewildering number of new therapeutic agents have revolutionized the healing arts. To develop powers of accurate observation, a critical and an inquiring mind—that is the ultimate aim of teaching.

COLLEGE NEWS

Edited by SIDNEY EPSTEIN, D.D.S., *San Francisco*

University of Pennsylvania:

Announcements

Thirty-six post-graduate courses in twenty-three different subjects will be offered by this school in the academic year 1950-1951.

The university announces the appointment of Dr. Burket as visiting professor to the institutions university at Bogota and the University of Antiquoia. He will spend three months at the two institutions.

Announcement is also made of the labors of Dr. Jacobs Sharp, New Haven, Connecticut, in cataloguing instruments used by the late Dr. Thomas W. Evans and among which is a particular denture made by him about 1867.

University of Tennessee:

Announcement

The university announces the retirement of Dr. R. D. Dean as dean and the appointment to that position of Dr. James T. Ginn, chief of the division of operative dentistry.

Emory University:

Announcement

Announcement is made of a school fund being established in honor of Dr. M. D. Huff who retired in 1948 after forty-seven years on the school faculty.

Announcement is also made of a new laboratory for post-graduates in anatomy.

Temple University:

Announcement

Continuation and graduate study courses still hold first positions in news from this college. Results are very satisfactory from the standpoint of attendance, earnestness and courses completed.

BOOK REVIEWS IN REVIEW

Conducted by DONALD A. WASHBURN, D.D.S.,[1] *Chicago*

Dental Anatomy: The Form and Function of the Permanent Teeth, by Robert C. Zeisz, D.D.S., F.A.C.D., and **The Form and Function of the Deciduous Teeth,** by James Nuckolls, D.D.S., 480 pages with 427 illustrations. St. Louis, C. V. Mosby Company, 1949. $14.00.

"This textbook is a complete morphological study of the anatomy of the deciduous teeth as well as of the permanent teeth. The authors present the subject matter in its simplest form without including general anatomy, histology, embryology, physiology, or other related subjects. It is a definitive account of one of the fundamentals in the training program of the dentist. Its contents offer a complete understanding of the form of the human teeth which is most vital to the dental student as well as to the practicing dentist so that the teeth may be restored to their correct contour and proper function.

"The book is based upon a detailed study of a composite picture which has been drawn following an intensive study of thousands of deciduous and permanent teeth. The general characteristics are set forth in detail by succinct descriptions, excellent illustrations, and diagrammatic outlines. This is especially valuable in teaching the student dental anatomy and his understanding of the reproduction of the teeth.

"The general introduction covers the structure of the permanent and deciduous dentitions, the supporting structures, the blood and nerve supplies, and essential nomenclature."—Maurice J. Saklad. *New York Journal of Dentistry,* April, 1950, pp. 170-171.

"The illustrations of diagrammatic outlines of the individual teeth are excellent. This is the first book on dental anatomy, to my knowledge, that has shown these outlines so clearly. Also, the authors have shown by illustrations the different types of individual teeth which may be found in the human dentition. This has never been so clearly illustrated before.

"All in all, the text is so arranged and illustrated that it should enable the student of dental anatomy to visualize the subject thoroughly. The old proverb, 'A single picture is worth a thousand words,' still holds true.

"I suggest to the authors that in subsequent editions or revisions it might be better if the illustrations of the maxillary teeth were shown in the same relative position as found in the dental arches."—C. F. Brand. *Pennsylvania Dental Journal,* January, 1950, pp. 33-34.

"A brief report as to: —

"1. Suitability as a class textbook,

"2. As a reference book.

"As defined, dental anatomy is the science of the structure of the teeth of man.

"The authors have adhered very closely to the above definition.

"A very lengthy and exhaustive description of each tooth has been given, for permanent and deciduous teeth, which is very excellent.

"Five or more aspects of each tooth have been very clearly illustrated in a very artistic way but no figures of natural skulls, jaws, or teeth.

"The illustrations of the permanent anterior teeth show heavy rolls of enamel at the cervical line which is greatly accentuated, and does not appear to be the average.

"In the case of the posterior teeth, the central development groove has been ex-

tended over the mesial and distal marginal ridges. This is not the average case, and very misleading to the student.

"The illustrations of the deciduous teeth are more natural and very good.

"The internal anatomy of both dentitions is very well depicted.

"The chapter on occlusion is very well given.

"The text lacks the chronology of the dentitions, with no mention of growth and development.

"In my personal opinion this textbook would not be suitable for students.

"As a reference book it might be misleading to the student as it is too diagrammatic."—W. J. S. Jackson. *Journal of the Canadian Dental Association*, February, 1950, p. 94.

"Although the book obviously is intended as a textbook, there is considerable subject matter of a general nature which makes it of value to the dentist in practice. The development of both the deciduous and permanent teeth and the factors which govern their eruption are biological processes which are fascinating to watch. Truly a miracle unfolds each time one of these entities takes its proper place at the proper time. The progressive changes which enlarge the jaws of the infant and continue on until the deciduous teeth are lost and replaced by the permanent set are changes that can be followed step by step, but changes that still mystify the beholder.

"If a reader is not too old to practice dentistry, he is not too old to benefit from studying (not merely reading) this book."—J.H.K. *Fortnightly Review of the Chicago Dental Society*, March 15, 1950, pp. 14, 28.

"This volume, which treats in remarkable detail the form and structure of the teeth, bringing to the student and practitioner the knowledge of dental anatomy which is of utmost importance, giving the practitioner a complete understanding of the form and function of the human teeth.

"The illustrations of the different views of the various teeth makes the descriptive text most interesting. A glossary of the special terms used in the text is very refreshing to our knowledge of nomenclature.

"The workmanship on the volume is characteristic of the volumes produced by these well known publishers." *Journal of the Ohio State Dental Association*, February, 1950, p. 49.

"The authors are to be congratulated on their venture and they have turned out a first class textbook for dental students, which will be invaluable to them in their class work. We strongly recommend this book for use in dental schools. It should be in every dental library. The book is well got up and printed and does credit to the publishers' art." *Journal of the All-India Dental Association*, February, 1950, p. 36.

"The only justification for the appearance of an additional text on an established scientific subject is either for the introduction of a new concept or for a more adequate correlation of recent advances in the field and allied subjects. As none of the primary objectives of a satisfactory text are achieved in this book, it is more than redundant. It is undesirable."—E. Lloyd DuBrul, D.D.S. *Illinois Dental Journal*, December, 1949, pp. 504-507.

". . . is undoubtedly the most extensive monograph devoted to the specific subject of the title in existence at the present time. . . .

"The text is unique in that the fine illustrations are representative of a composite of hundreds of human teeth. As a result it is altogether possible that the dental student, in making individual tooth restorations, will copy the anatomy of the natural dentition involved at the particular time rather than making restorations that identify the operator with some particular school.

"The authors have accomplished a com-

mendable work and the publishers have again lived up to the excellent reputation they have established in the field of dental publishing." —P.H.B. *Dental Items of Interest*, March, 1950, pp. 319-320.

A Textbook of Oral Pathology, by Thomas J. Hill, D.D.S. Fourth edition. 398 pages with 314 illustrations. Philadelphia, Lea and Febiger, 1949. $7.50.

"It is a rare privilege to review a book which the reviewer would like to have written. The subject except where noted later is reliably and adequately covered; the illustrations are excellent, well chosen and reproduced with great fidelity on a good quality of paper.

"There is a very desirable correlation of the content of this text to clinical practice and it is highly recommended both as a textbook for students and for use by clinicians."—Edward H. Hatton. *Journal of the American Dental Association*, February, 1950, p. 234.

"Much new material has been added, especially in the chapter on dental caries which deals with aetiology, formation of acids, conditions which influence caries activity, the resistance of the tooth, predisposing factors, and control action of fluorides.

"Other subjects dealt with are 'Abnormalities,' 'Hypoplasia,' 'Organic and Inorganic Accretions,' 'Abrasion and Erosion,' 'Diseases of Pulp,' 'Periapical Diseases,' 'Gingivitis,' 'Periodontal Disease,' 'Deep Neck Infections,' 'Stomatitis,' 'Focal Infection,' and 'Progressive Tissue Changes.'

"The author states that this book is primarily for use in teaching dental students but this reviewer believes that it should prove most helpful to the practicing dentist."—M.H.G. *Journal of the Canadian Dental Association*, October, 1948, p. 551.

"The new (4th) edition seems justified since the past four years have seen such remarkable progress in the fields of preventive dentistry and dental caries. The author has added much to these chapters to emphasize the latest theories and research in the newer methods of caries control.

"Teachers of oral pathology and particularly periodontia will be most grateful to find acceptance and usage throughout the text of the new terminology which was accepted by the nomenclature committee of the American Academy of Periodontology in 1947. This feature alone will accomplish much in eliminating the perplexing and often synonymous terms which have plagued the students of periodontology."—Evert A. Archer, D.D.S., M.D.S. *Illinois Dental Journal*, December, 1949, p. 496.

"The experiences and researches of the author and the lucidity with which he presents the subject, all help to make this the standard textbook for students and teachers of oral pathology. Dr. Hill shows what can be done to prevent common oral diseases and gives diagnosis and treatment of periodontal conditions. Because the book indicates the direction of future dental progress in the field of preventive dentistry, it is considered an important contribution to workers in both the dental and public health fields."—*West Virginia Dental Journal*, October, 1949, p. 75.

"The lucidity of the textual presentation is a most desirable element in such a volume on Oral Pathology. The prevention of common oral diseases is well stressed and a splendid dissertation on diagnosis and treatment of periodontal diseases and conditions makes the volume an up-to-date treatise on a very current dental subject. There is much new material in the revised chapter on Deep Neck Infections of Dental Origin and many new illustrations have replaced old ones in former editions. The volume is recommended to both teacher and student and is another fine contribution to the general practitioner's library."—*Bulletin of the National Dental Association*, October, 1949, p. 57.

"The book discusses the abnormal development of the oral region, abnormalities of the teeth, dental caries, diseases of the pulp, the periapical and the periodontal tissues, stomatitis, oral foci of infection, and progressive tissue changes. Under the latter heading are included inflammatory tissue changes, tumors, and cysts. A chapter on deep neck infections of dental origin by Edward Reiter, D.M.D., is included.

"The book is well printed and arranged. The text is profusely illustrated, although many of the illustrations have appeared in many previous publications for a number of years. This work is well suited as a textbook for undergraduate students, and should be useful for a quick review of oral pathology by dental practitioners."—Lt. Col. John S. Oartel. *Pennsylvania Dental Journal,* October, 1949, p. 309.

Oral Anatomy, by Henry Sicher. 529 pages, 310 illustrations, 24 in color. St. Louis, Mosby, 1949. $15.00.

"General practitioners will like this book as well as the oral specialists, because it discusses so many practical things relating to their everyday business. To illustrate, the section on descriptive anatomy of the teeth is as comprehensive as you will find in a book devoted exclusively to dental anatomy; then it also has such plus features as arrangement of the teeth, results of attrition, anamalies of teeth and dentition, active and passive eruption, etc. It not only is accurate in description and illustration but it points out the surgical importance of certain anatomic relationships, functions, blood supplies and the like. It is these practical pointers, written into the regular text as well as in the special section, that make this such an extraordinary book."—William P. Schoen, Jr., B.S., D.D.S., M.D.S. *Illinois Dental Journal, December,* 1949, p. 515.

"This textbook by Dr. Sicher will be invaluable to the postgraduate student. It is packed with facts, thought provoking and stimulating. The more advanced undergraduate will also find it most useful. It is not, however, really satisfactory for the junior student. The whole tone is too advanced and much of the required general anatomy is not touched."—*British Dental Journal,* October 7, 1949, p. 192.

"Through a book of this nature the busy practitioner can now correlate the subject of oral anatomy with his clinical practice. As students we were never aware of the applicability of anatomic theory to practice. This failure was due in some degree to the arrangement of the schedule. When the student is taught anatomy he cannot apply his knowledge because he has yet to learn the fields in which, as the teacher insists, anatomic knowledge is indispensable. When the student starts his clinical knowledge, he cannot apply anatomic knowledge because he has retained at the very best, a few fragments of memorized chapters.

"It is because of the aforementioned conditions that such a book as this is recommended to dentists as a ready reference."—F.J.F. *District of Columbia Dental Journal,* April, 1949, p. 34.

"All in all the book probably is the best in this field that has been produced in this country. For its many excellent qualities it is warmly recommended.—A. Zimmerman. *Journal of the American Dental Association, September,* 1949, p. 364.

"The author emphasizes the serious problem in undergraduate dental education of correlating the subject of anatomy and other basic sciences to the clinical practice of dentistry in the subsequent clinical years. In *Oral Anatomy* an attempt is made to bridge the gap between theory and practice and prove that anatomic understanding facilitates clinical work and permits the substitution of adaptable and progressive action for a rigid clinical technic. The text is designed to supplement rather than replace textbooks on dental anatomy and on human anatomy which are lacking in applied oral anatomy.

"The book is divided into two parts comprising approximately 362 pages of descriptive anatomy and 108 pages of regional and applied anatomy.

"This text can be highly recommended for dental students and practioners. It will be found of great practical value to oral surgeons.—C. W. Waldron. *Journal of Oral Surgery*, January, 1950, pp. 76-77.

"Oral Anatomy bridges the gap between theory and practice and proves that anatomic understanding does not only facilitate clinical work but also allows for the substitution of a rigid clinical technique by an adaptable and therefore potentially progressive action.

"Oral Anatomy is one of the newer-type texts and is magnificently representative of a trend in which dentistry is developing its own literature. This book is a must for the dental student and a valuable source of review for the practitioner.—P.H.B. *Dental Items of Interest*, May, 1949, p. 551.

Periodontia, by Henry M. Goldman. Second edition; 611 pages, 488 illustrations, 18 in color. St. Louis, Mosby, 1949. $12.50.

"In this second edition the author stresses still the primary principle for which he ever contends, that the problems in the field of periodontia are encountered in every day practice. He contends justly, that the diagnosis and therapy are the concern of every dentist. Acting upon this basic principle, he has proceeded to cover all phases of the early dagnosis, treatment-planning, histopathology, anatomical relations and evaluation of prevention and cure in a series of succeeding chapters very well arranged. Contributory causation is also a well discussed subject and individualism as applied to this causation theory is well elaborated."—*Bulletin of the National Dental Association*, October, 1949, p. 57.

"The present reviewer offers no criticism other than to suggest that a more extensive bibliography would make the text more useful to the serious student. The publishers and Dr. Goldman are to be congratulated for making the second edition of this excellent text available at this early date. All dentists who are desirous of basing their practice on sound biological principles, insofar as they are known at this time, will find that *Periodontia* by Goldman is essential to that end."—P.H.B. *Dental Items of Interest*, November, 1949, p. 1219.

"Since it has come about that the maintenance of health of the periodontium, as well as the care of the teeth themselves, is the task of every dentist, the fundamentals of the study of periodontia must be thoroughly known. To describe and correlate these principles so that the general practioner can easily grasp them is the purpose of this book."—*West Virginia Dental Journal*, October, 1949, p. 76.

"To my way of thinking this book is for the general practitioner but it should not be excluded from the libraries of specialists for it is invaluable as a reference."—E.J.J. *Journal of the Tennessee State Dental Association*, January, 1950, p. 76.

"Goldman's 'Periodontia' is one of the few books on this subject which have the rank of a text book, and, therefore, it seems to be justified to make the following remarks. Scholarly science is searching for the truth and consequently the principal should be applied that even the scholar who believes in some theories should always have some doubt in his mind whether he is right. The reviewer would like to compare scientific theories presented to the reader with a muscle. A muscle without an antagonist is paralyzed in its function and statements of scientific nature made in a dogmatic unilateral manner without mentioning ideas or statements which are opposed to them lead to stagnation and lack of further investigation. Goldman's bibliography contains the work of Haupl-Land and his term 'marginal

periodontitis' has been adopted from their writings. Therefore, it would have been constructive to present the view of those men in regard to continuous eruption and atrophy in this book in order to give the reader at least a chance to think it over as to whose argument has the better approach to scientific truth. Otherwise, his book has many inherent values. It will be an asset to those inetrested in periodontal science and particularly those well experienced and previously trained in this field will find it very stimulating and full of information.

"It is a powerful book and it will strengthen the reader, either by giving support to his previous ideas, or as an excellent sparring partner."—Max Gratzinger, M.D., M.S., D.D.S. *Illinois Dental Journal*, December, 1949, pp. 493-495.

OTHER BOOK ANNOUNCEMENTS

Principles and Technique for Complete Denture Construction, by Victor H. Sears, D.D.S. This book consists of 416 pages, including a subject index and an author index. It is well printed, extravagantly spaced and is very thoroughly illustrated. Published by C. V. Mosby & Co., St. Louis, Mo. Price $5.

"Klinische Zahneilkunde," Von Prof. Dr. P. P. Kranz 4. erweiterte Aufl. 1949. 553 Seiten mit 556 schwarzen u. farb. Abb. im Text und auf 10 Tafeln. Format 17x24, 5 cm. Kart. 26.—DM, Hln. 28. 50 DM. This book consists of 552 pages with an index. It is well printed on a good quality of paper and profusely illustrated including some in color.

Root Canal Therapy. This is the third edition of this book by Louis I. Grossman, D.D.S., Dr. med-dent., Assistant Professor of Oral Medicine, School of Dentistry, University of Pennsylvania. It consists of 368 pages, including an index, with 119 illustrations. Published by Lee and Febiger, Philadelphia. Price $6.50.

"Die Enzyme des Speichels und der Zahne," Von H. Eggers Lura. (Zahnheilkunde in Einzeldarstellungen, Folge VI). 76 Seiten. Kart. 6.80 DM.

Announcement is made of the receipt of this above mentioned monograph consisting of 76 pages with lengthy biography, the author carries on his work in the Hospitalzahnartz Holback (Danemark).

Year Book of Dentistry, edited by S. D. Tylman, D.D.S., M.S., University of Illinois; D. A. Keys, D.D.S., University of Nebraska; J. W. Knutson, D.D.S., Dr.P.H., Washington, D. C.; G. R. Moore, D.D.S., M.S., University of Michigan; H. B. G. Robinson, D.D.S., Ohio State University; C. W. Waldron, M.D., D.D.S., University of Minnesota. This is the 1949 issue of the well known book by this name, comprised of 656 pages, including both subject and author index. The reputation of this publication is kept up if not even superseded possibly due to the quality of articles reviewed. It should be in every dentist's hands. Published by Year Book Publishers, Inc., Chicago 11, Ill. Price $5.00.

Practical Anatomy, Manual of (Eleventh Edition). This book in three volumes is well known as Cunningham's Manual of Practical Anatomy. This edition is revised and edited by J. C. Brash, M.C., M.A., M.D., Professor of Anatomy, University of Edinburgh. Volume one consists of 387 pages being a general instruction to the upper and lower limbs with 44 plates including 44 radiographs and 144 other illustrations, some in color; volume two is devoted to the thorax and abdomen. It consists of 488 pages with index and 24 plates including 16 radiographs and 212 other illustrations, some in color; volume three is devoted to the head, neck and brain. It consists of 513

pages with 16 plates including 12 radiographs, and 213 other illustrations, some colored. Published by Oxford University Press, London, New York, and Toronto. Price $12.75 the set.

A new catalogue of Dental Health Education Material for 1950 is being distributed by the American Dental Association. A copy is available on request. All of these educational aids have value but some are especially appropriate in a children's practice and for classroom instruction. Reference is made more specifically to the well illustrated and well paraphrased booklet entitled "Everybody Smile," which was published by the State of Georgia, Department of Public Health, Atlanta.

Current Therapy 1950. Latest approved methods of treatment for the practicing physician, by Editor Howard F. Conn, M.D., with a dozen contributing editors.

This book is novel in its arrangement in that it contains specific diagnosis and treatments of various diseases by many different men. In some cases one man may be selected for one disease. It is therefore realistic in its application and should be useful to physicians and dentists who may be interested in medical conditions. Only a small space is given to dentistry. The book consists of 736 pages in double column. It is easily read and should invite attention. Publishers, W. B. Saunders Company, Philadelphia. Price $10.00.

Endodontia. This is the title of a book by Bernhard Gottlieb, M.D., Professor of Oral Pathology and Dental Research, in collaboration with Seth Lee Baron, D.D.S., Assistant Professor of Root Canal Therapy, and J. Hobson Crook, D.D.S., Associate in Dental Research, all of Baylor University School of Dentistry, Dallas, Texas. It consists of 177 pages with an index, a bibliography and 103 illustrations. Published by C. V. Mobsley Company, St. Louis, Mo. Price $6.00.

Dental Index of Periodical Literature. This is the index to dental literature for the period 1945 to 1947, published by the American Dental Association under the immediate direction of Miss Martha Mann, indexer.

This edition is presented in a new format, and offered to the public under a set of Subject Headings, developed through a number of years of trial and effort, finally arriving at the present set. No set of Subject Headings can be final due to many unforeseen conditions requiring change, but this set does offer a high degree of perfection over that first used. The Dewey Decimal System of classification has been completely eliminated and although this is the third volume in this form it now does represent a complete separation from the former system or systems. One hundred and forty-four publications in the English language from different countries are indexed. It carries a subject and author index in a straight alphabetical arrangement which will make this book of great value and easily usable. Price $10.00.

A Textbook of Dental Anatomy and Physiology, by Russell C. Wheeler, D.D.S., F.A.C.D., Associate Professor of Anatomy at Washington University, School of Dentistry, St. Louis. New, second edition. 422 pages with 414 figures. Philadelphia and London: W. B. Saunders Company, 1950. Price $6.75.

Philanthropy. This is the title of a little paper-backed book of 102 pages edited by John Price Jones.

This book presents a discussion of Current Trends in finance and philanthropic undertakings and may be of value to those interested in raising funds for dental education or professional use. Published by the Inter River, 150 Nassace, New York 7, New York, and may be had upon application.

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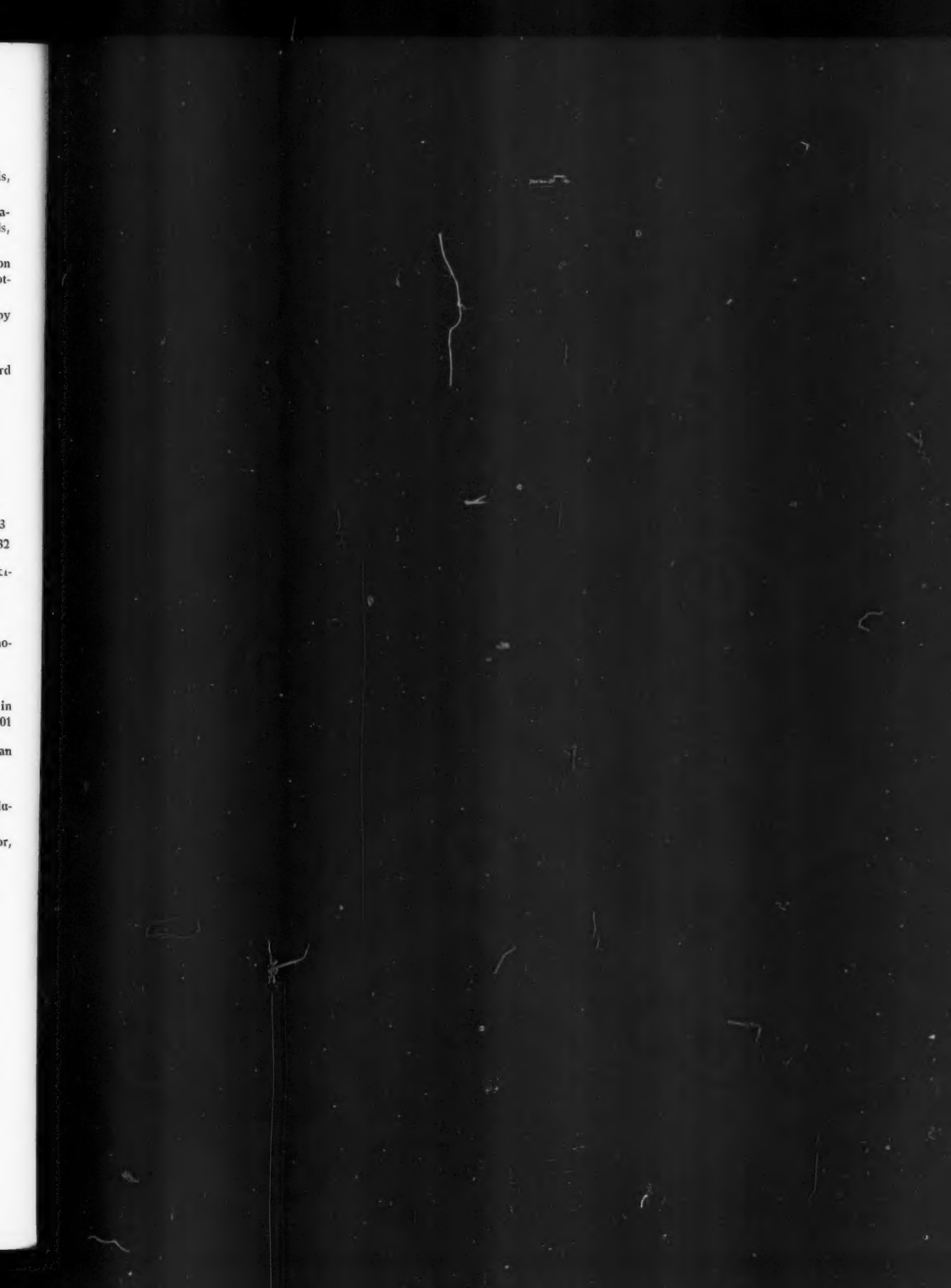

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